



TOEFL **Reading** **Practice**

With Answers

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This is important if you want to succeed at a TOEFL Reading test. Students are given large amounts of reading in most post-secondary. You should practice looking for the main idea by reading quickly through a passage. Then you should read more thoroughly for the purpose of answering the questions. It is not necessary for you to understand everything in a reading passage. You just need to be able to answer the questions. There will be many terms that you do not recognize. Technical words that are not defined in the text will be defined in the glossary. If you need to know the meaning of a word to answer a question and it is not defined in the text or in the glossary, try to identify the root word, stem, and part of speech.

TOFEL 1

Questions 1-13

Atmospheric pressure can support a column of water up to 10 meters high. But plants can move water much higher, the sequoia tree can pump water to its very top, more than 100 meters above the ground. Until the end of the nineteenth century, the movement of water in trees and other tall plants was a mystery. Some botanists hypothesized that the living cells of plants in which all the cells are killed can still move water to appreciable heights. Other explanations for the movement of water in plants have been based on root pressure, a push on the water from the roots at the bottom of the plant. But root pressure is not nearly great enough to push water to the tops of tall trees. Furthermore, the conifers, which are among the tallest trees, have unusually low root pressures.

If water is not pumped to the top of a tall tree, and if it is not pushed to the top of a tall tree, then we may ask, How does it get there? According to the currently accepted cohesion-tension theory, water is pulled there. The pull on a rising column of water in a plant results from the evaporation of water at the top of the plant. As water is lost from the surface of the leaves, a negative pressure, or tension, is created. The evaporated water is replaced by water moving from inside the plant in unbroken columns that extend from the top of a plant to its roots. The same forces that create surface tension in any sample of water are responsible for the maintenance of these unbroken columns of water. When water is confined in tubes of very small bore, the forces of cohesion (the attraction between water molecules) are so great that the strength of a column of water compares with the strength of a steel wire of the same diameter. This cohesive strength permits columns of water to be pulled to great heights without being broken.

- How many theories does the author mention?
(A) One X
(B) Two
(C) Three
(D) Four
- The passage answers which of the following questions?
(A) What is the effect of atmospheric pressure on foliage?
(B) When do dead cells harm plant growth?
(C) How does water get to the tops of trees? X
(D) Why is root pressure weak?
- The word "demonstrated" in line 6 is closest in meaning to
(A) ignored
(B) showed X
(C) disguised
(D) distinguished
- What do the experiments mentioned in lines 5-7 prove?
(A) Plant stems die when deprived of water
(B) Cells in plant stems do not pump water
(C) Plants cannot move water to high altitudes X
(D) Plant cells regulate pressure within stems
- How do botanists know that root pressure is not the only force that moves water in plants?
- What causes the tension that draws water up a plant?
(A) Humidity
(B) Plant growth
- Some very tall trees have weak root pressure. X
(B) Root pressures decrease in winter.
(C) Plants can live after their roots die.
(D) Water in a plant's roots is not connected to water in its stem.
- Which of the following statements does the passage support?
(A) Water is pushed to the tops of trees. X
(B) Botanists have proven that living cells act as pumps.
(C) Atmospheric pressure draws water to the tops of tall trees.
(D) Botanists have changed their theories of how water moves in plants.
- The word "it" in line 12 refers to
(A) top
(B) tree
(C) water X
(D) cohesion-tension theory.
- The word "there" in line 14 refers to
(A) Treetops X
(B) roots
(C) water columns
(D) tubes

- (C) Root pressure X
- (D) Evaporation

10. The word "extend" in line 18 is closest in meaning to

- (A) Stretch X
- (B) branch
- (C) increase
- (D) rotate

11. According to the passage, why does water travel through plants in unbroken columns?

- (A) Root pressure moves the water very rapidly.
- (B) The attraction between water molecules is strong. X
- (C) The living cells of plants push the water

molecules together.

- (D) Atmospheric pressure supports the columns.

12. Why does the author mention steel wire in line 22?

- (A) To illustrate another means of pulling water
- (B) To demonstrate why wood is a good building material
- (C) To indicate the size of a column of water
- (D) To emphasize the strength of cohesive forces in water X

13. Where in the passage does the author give an example of a plant with low root pressure?

- (A) Lines 3-4
- (B) Lines 5-7
- (C) Lines 10-11 X
- (D) Lines 12-13

Question 14-22

Mass transportation revised the social and economic fabric of the American city in three fundamental ways. It catalyzed physical expansion, it sorted out people and land uses, and it accelerated the inherent instability of urban life. By opening vast areas of unoccupied land for residential expansion, the omnibuses, horse railways, commuter trains, and electric trolleys pulled settled regions outward two to four times more distant from city centers than they were in the pre-modern era. In 1850, for example, the borders of Boston lay scarcely two miles from the old business district; by the turn of the century the radius extended ten miles. Now those who could afford it could live far removed from the old city center and still commute there for work, shopping, and entertainment. The new accessibility of land around the periphery of almost every major city sparked an explosion of real estate development and fueled what we now know as urban sprawl. Between 1890 and 1920, for example, some 250,000 new residential lots were recorded within the borders of Chicago, most of them located in outlying areas. Over the same period, another 550,000 were plotted outside the city limits but within the metropolitan area. Anxious to take advantage of the possibilities of commuting, real estate developers added 800,000 potential building sites to the Chicago region in just thirty years – lots that could have housed five to six million people.

Of course, many were never occupied; there was always a huge surplus of subdivided, but vacant, land around Chicago and other cities. These excesses underscore a feature of residential expansion related to the growth of mass transportation: urban sprawl was essentially unplanned. It was carried out by thousands of small investors who paid little heed to coordinated land use or to future land users. Those who purchased and prepared land for residential purposes, particularly land near or outside city borders where transit lines and middle-class inhabitants were anticipated, did so to create demand as much as to respond to it. Chicago is a prime example of this process. Real estate subdivision there proceeded much faster than population growth.

14. With which of the following subjects is the passage mainly concerned?
(A) Types of mass transportation.
(B) Instability of urban life.
(C) How supply and demand determine land use.
(D) The effects of mass transportation on urban expansion. X
15. The author mentions all of the following as effects of mass transportation on cities EXCEPT
(A) growth in city area
(B) separation of commercial and residential districts.X
(C) Changes in life in the inner city.
(D) Increasing standards of living.
16. The word "vast" in line 3 is closest in meaning to
(A) Large X
(B) basic
(C) new
(D) urban
17. The word "sparked" in line 11 is closest in meaning to
(A) brought about X
(B) surrounded
(C) sent out
(D) followed
18. Why does the author mention both Boston and Chicago?
(A) To demonstrate positive and negative effects of growth.
(B) To show that mass transit changed many cities.X
(C) To exemplify cities with and without mass transportation.
19. The word "potential" in line 16 is closest in meaning to
(A) certain
(B) popular
(C) improved
(D) possible X
20. The word "many" in line 19 refers to
(A) people
(B) lots X
(C) years
(D) developers
public transportation. X
21. According to the passage, what was one disadvantage of residential expansion?
(A) It was expensive.
(B) It happened too slowly.
(C) It was unplanned.
(D) It created a demand for

22. The author mentions Chicago in the second paragraph as an example of a city

- (A) that is large
- (B) that is used as a model for land development
X
- (C) where land development exceeded population growth
- (D) with an excellent mass transportation system.

Question 23-33

The preservation of embryos and juveniles is rare occurrence in the fossil record. The tiny, delicate skeletons are usually scattered by scavengers or destroyed by weathering before they can be fossilized. Ichthyosaurs had a higher chance of being preserved than did terrestrial creatures because, as marine animals, they tended to live in environments less subject to erosion. Still, their fossilization required a suite of factors: a slow rate of decay of soft tissues, little scavenging by other animals, a lack of swift currents and waves to jumble and carry away small bones, and fairly rapid burial. Given these factors, some areas have become a treasury of well-preserved ichthyosaur fossils.

The deposits at Holzmaden, Germany, present an interesting case for analysis. The ichthyosaur remains are found in black, bituminous marine shales deposited about 190 million years ago. Over the years, thousands of specimens of marine reptiles, fish, and invertebrates have been recovered from these rocks. The quality of preservation is outstanding, but what is even more impressive is the number of ichthyosaur fossils containing preserved embryos. Ichthyosaurs with embryos have been reported from 6 different levels of the shale in a small area around Holzmaden, suggesting that a specific site was used by large numbers of ichthyosaurs repeatedly over time. The embryos are quite advanced in their physical development; their paddles, for example, are already well formed. One specimen is even preserved in the birth canal. In addition, the shale contains the remains of many newborns that are between 20 and 30 inches long.

Why are there so many pregnant females and young at Holzmaden when they are so rare elsewhere? The quality of preservation is almost unmatched, and quarry operations factors do not account for the interesting question of how there came to be such a concentration of pregnant ichthyosaurs in a particular place very close to their time of giving birth.

23. The passage supports which of the following conclusions?
(A) Some species of ichthyosaurs decayed more rapidly than other species. X
(B) Ichthyosaur newborns are smaller than other newborn marine reptiles.
(C) Ichthyosaurs were more advanced than terrestrial creatures.
(D) Ichthyosaurs may have gathered at Holzmaden to give birth.
24. The word "they" in line 3 refers to
(A) Skeletons X
(B) scavengers
(C) creatures
(D) environments
25. All of the following are mentioned as factors that encourage fossilization EXCEPT the
(A) speed of burial
(B) conditions of the water
(C) rate at which soft tissues decay
(D) cause of death of the animal. X
29. Why does the author mention the specimen preserved in the birth canal (line 19)?
(A) To illustrate that the embryo fossils are quite advanced in their development X
(B) To explain why the fossils are well preserved
(C) To indicate how the ichthyosaurs died
(D) To prove that ichthyosaurs are marine animals.
26. Which of the following is true of the fossil deposits discussed in the passage?
(A) They include examples of newly discovered species.
(B) They contain large numbers of well-preserved specimens X
(C) They are older than fossils found in other places
(D) They have been analyzed more carefully than other fossils.
27. The word "outstanding" in line 14 is closest in meaning to
(A) extensive
(B) surprising X
(C) vertical
(D) excellent
28. The word "site" in line 17 is closest in meaning to
(A) example
(B) location X
(C) development
(D) characteristic
30. The word "they" in line 22 refers to
(A) pregnant females and young X
(B) quarry operations
(C) the value of the fossils
(D) these factors
31. The phrase "account for" in line 25 is closest in meaning to
(A) record

- (B) describe
- (C) equal
- (D) explain X

32. Which of the following best expresses the relationship between the first and second paragraphs?

- (A) The first paragraph describes a place while the second paragraph describes a field of study.
- (B) The first paragraph defines the terms that are used in the second paragraph.
- (C) The second paragraph describes a specific instance of the general topic discussed in the first paragraph. X
- (D) The second paragraph presents information that contrasts with the information given in the first paragraph.

33. Where in the passage does the author mention the variety of fossils found at Holzmaden?

- (A) Line 1
- (B) Lines 3-5
- (C) Lines 12-13 X
- (D) Lines 19-21

Questions 34-41

The Lewis and Clark expedition, sponsored by President Jefferson, was the most important official examination of the high plains and the Northwest before the War of 1812. The President's secretary, Captain Meriwether Lewis, had been instructed to "explore the Missouri River, and such principal streams of it as, by its course and communication with the waters of the Pacific Ocean ... may offer her most direct and practicable water communication across the continent, for the purposes of commerce." Captain William Clark, the younger brother of famed George Rogers Clark, was invited to share the command of the exploring party.

Amid rumors that there were prehistoric mammoths wandering around the unknown region and that somewhere in its wilds was a mountain of rock salt 80 by 45 miles in extent, the two captains set out. The date was May 14, 1804. Their point of departure was the mouth of the Wood River, just across the Mississippi from the entrance of the Missouri River. After toiling up the Missouri all summer, the group wintered near the Mandan villages in the center of what is now North Dakota. Resuming their journey in the spring of 1805, the men worked their way along the Missouri to its source and then crossed the mountains of western Montana and Idaho. Picking up a tributary of the Columbia River, they continued westward until they reached the Pacific Ocean, where they stayed until the following spring.

Lewis and Clark brought back much new information, including the knowledge that the continent was wider than originally supposed. More specifically, they learned a good deal about river drainages and mountain barriers. They ended speculation that an easy coast-to-coast route existed via the Missouri-Columbia River systems, and their reports of the climate, the animals and birds, the trees and plants, and the Indians of the West – though not immediately published – were made available to scientists.

34. With what topic is the passage primarily concerned?
- (A) The river systems of portions of North America.
 - (B) Certain geological features to the North American continent.
 - (C) An exploratory trip sponsored by the United States government. X
 - (D) The discovery of natural resources in the United States.
35. According to the passage, the primary purpose of finding a water route across the continent was to
- (A) gain easy access to the gold and other riches of the Northwest
 - (B) become acquainted with the inhabitants of the West.
 - (C) investigate the possibility of improved farmland in the West.
 - (D) facilitate the movement of commerce across the continent X
36. The river Meriwether Lewis was instructed to explore was the
- (A) Wood
 - (B) Missouri X
 - (C) Columbia
 - (D) Mississippi
37. According to the passage, the explorers spent their first winter in what would become
- (A) North Dakota X
 - (B) Missouri
 - (C) Montana
 - (D) Idaho
38. The author states that Lewis and Clark studied all of the following characteristics of the explored territories EXCEPT
- (A) mineral deposits
 - (B) the weather X
 - (C) animal life
 - (D) native vegetation
39. The phrase "Picking up" in line 16 could best be replaced by which of the following?
- (A) Searching for
 - (B) Following X
 - (C) Learning about
 - (D) Lifting
40. It can be inferred from the passage that prior to the Lewis and Clark expedition the size of the continent had been
- (A) of little interest
 - (B) underestimated
 - (C) known to native inhabitants of the West
 - (D) unpublished but known to most scientists X

41. Where in the passage does the author refer to the explorers' failure to find an easy passageway to the western part of the continent?

- (A) Lines 1-3
- (B) Lines 7-8
- (C) Lines 16-18
- (D) Lines 21-24

Questions 42-50

For a century and a half the piano has been one of the most popular solo instruments for Western music. Unlike string and wind instrument, the piano is completely self-sufficient, as it is able to play both the melody and its accompanying harmony at the same time. For this reason, it became the favorite household instrument of the nineteenth century.

The ancestry of the piano can be traced to the early keyboard instruments of the fifteenth and sixteenth centuries – the spinet, the dulcimer, and the virginal. In the seventeenth century the organ, the clavichord, and the harpsichord became the chief instruments of the keyboard group, a supremacy they maintained until the piano supplanted them at the end of the eighteenth century. The clavichord's tone was metallic and never powerful; nevertheless, because of the variety of tone possible to it, many composers found the clavichord a sympathetic instrument for concert use, but the character of the tone could not be varied save by mechanical or structural devices.

The piano was perfected in the early eighteenth century by a harpsichord maker in Italy (though musicologists point out several previous instances of the instrument). This instrument was called a piano e forte (soft and loud), to indicate its dynamic versatility; its strings were struck by a recoiling hammer with a felt-padded head. The wires were much heavier in the earlier instruments. A series of mechanical improvements continuing well into the nineteenth century, including the introduction of pedals to sustain tone or to soften it, the perfection of a metal frame and steel wire of the finest quality, finally produced an instrument capable of myriad tonal effects from the most delicate harmonies to an almost orchestral fullness of sound, from a liquid, singing tone to a sharp, percussive brilliance.

42. What does the passage mainly discuss?
(A) The historical development of the piano X
(B) The quality of tone produced by various keyboard instruments
(C) The uses of keyboard instruments in various types of compositions
(D) The popularity of the piano with composers
43. Which of the following instruments was widely used before the seventeenth century?
(A) The harpsichord
(B) The spinet X
(C) The clavichord
(D) The organ
44. The words "a supremacy" in line 9 are closest in meaning to
(A) a suggestion
(B) an improvement
(C) a dominance X
(D) a development
45. The word "supplanted" in line 10 is closest in meaning to
(A) supported
(B) promoted
(C) replaced X
(D) dominated
46. The word "it" in line 11 refers to the
(A) variety
(B) music
(C) harpsichord
(D) clavichord X
47. According to the passage, what deficiency did the harpsichord have?
(A) It was fragile
(B) It lacked variety in tone.
(C) It sounded metallic. X
(D) It could not produce a strong sound.
48. Where in the passage does the author provide a translation?
(A) Lines 4-5
(B) Lines 13-15
(C) Lines 18-19 X
(D) Lines 20-25
49. According to the information in the third paragraph, which of the following improvements made it possible to lengthen the tone produced by the piano?
(A) The introduction of pedals X
(B) The use of heavy wires
(C) The use of felt-padded hammerheads
(D) The metal frame construction

50. The word "myriad" in line 23 is
closest in meaning to

- (A) noticeable
- (B) many X
- (C) loud
- (D) unusual

TOFEL 2

Questions 1-7

Joyce Carol Oates published her first collection of short stories, *By The Gate*, in 1963, two years after she had received her master's degree from the University of Wisconsin and become an instructor of English at the University of Detroit. Her productivity since then has been prodigious, accumulating in less than two decades to nearly thirty titles, including novels, collections of short stories and verse, plays, and literary criticism. In the meantime, she has continued to teach, moving in 1967 from the University of Detroit to the University of Windsor, in Ontario, and, in 1978, to Princeton University. Reviewers have admired her enormous energy, but find a productivity of such magnitude difficult to assess.

In a period characterized by the abandonment of so much of the realistic tradition by authors such as John Barth, Donald Barthelme, and Thomas Pynchon, Joyce Carol Oates has seemed at times determinedly old-fashioned in her insistence on the essentially mimetic quality of her fiction. Hers is a world of violence, insanity, fractured love, and hopeless loneliness. Although some of it appears to come from her own direct observations, her dreams, and her fears, much more is clearly from the experiences of others. Her first novel, *With Shuddering Fall* (1964), dealt with stock car racing, though she had never seen a race. *IN Them* (1969) she focused on Detroit from the Depression through the notes of 1967, drawing much of her material from the deep impression made on her by the problems of one of her students. Whatever the source and however shocking the events or the motivations, however, her fictive world remains strikingly akin to that real one reflected in the daily newspapers, the television news and talk shows, and the popular magazines of our day.

1. What is the main purpose of the passage?
 - (A) To review Oates's *By the North Gate*
 - (B) To compare some modern writers
 - (C) To describe Oates's childhood
 - (D) To outline Oates's career
2. Which of the following does the passage indicate about Joyce Carol Oates's first publication?
 - (A) It was part of her master's thesis.
 - (B) It was a volume of short fiction.
 - (C) It was not successful.
 - (D) It was about an English instructor in Detroit.
3. Which of the following does the passage suggest about Joyce Carol Oates in terms of her writing career?
 - (A) She has experienced long nonproductive periods in her writing.
 - (B) Her style is imitative of other contemporary authors
4. The word "characterized" in line 10 can best be replaced by which of the following?
 - (A) Shocked
 - (B) Impressed
 - (C) Distinguished
 - (D) Helped
5. What was the subject of Joyce Carol Oates's first novel?
 - (A) Loneliness
 - (B) Inanity
 - (C) Teaching
 - (D) Racing
6. Why does the author mention Oates's book *Them*?
 - (A) It is a typical novel of the 1960's
 - (B) It is her best piece of nonfiction.
 - (C) It is a fictional work based on the experiences of another person.
 - (D) It is an autobiography.

7. Which of the following would Joyce Carol Oates be most likely to write?
- (A) A story with an unhappy ending
 - (B) A romancer novel set in the nineteenth century
 - (C) A science fiction novel
 - (D) A dialogue for a talk show

Question 8-18

Certainly no creature in the sea is odder than the common sea cucumber. All living creature, especially human beings, have their peculiarities, but everything about the little sea cucumber seems unusual. What else can be said about a bizarre animal that, among other eccentricities, eats mud, feeds almost continuously day and night but can live without eating for long periods, and can be poisonous but is considered supremely edible by gourmets?

For some fifty million years, despite all its eccentricities, the sea cucumber has subsisted on its diet of mud. It is adaptable enough to live attached to rocks by its tube feet, under rocks in shallow water, or on the surface of mud flats. Common in cool water on both Atlantic and Pacific shores, it has the ability to suck up mud or sand and digest whatever nutrients are present.

Sea cucumbers come in a variety of colors, ranging from black to reddish - brown to sand - color and nearly white. One form even has vivid purple tentacles. Usually the creatures are cucumber - shaped - hence their name - and because they are typically rock inhabitants, this shape, combined with flexibility, enables them to squeeze into crevices where they are safe from predators and ocean currents.

Although they have voracious appetites, eating day and night, sea cucumbers have the capacity to become quiescent and live at a low metabolic rate - feeding sparingly or not at all for long periods, so that the marine organisms that provide their food have a chance to multiply. If it were not for this faculty, they would devour all the food available in a short time and would probably starve themselves out of existence.

But the most spectacular thing about the sea cucumber is the way it defends itself. Its major enemies are fish and crabs, when attacked, it squirts all its internal organs into the water. It also casts off attached structures such as tentacles. The sea cucumber will eviscerate and regenerate itself if it is attacked or even touched; it will do the same if surrounding water temperature is too high or if the water becomes too polluted.

8. What does the passage mainly discuss?
(A) The reason for the sea cucumber's name
(B) What makes the sea cucumber unusual
(C) How to identify the sea cucumber
(D) Places where the sea cucumber can be found
9. In line 3, the word "bizarre" is closest meaning to
(A) odd
(B) marine
(C) simple
(D) rare
10. According to the Passage, why is the shape of sea cucumbers important?
(A) It helps them to digest their food
(B) It helps them to protect themselves from danger.
(C) It makes it easier for them to move through the mud.
(D) It makes them attractive to fish.
11. The words "this faculty" in line 20 refer to the sea cucumber's ability to
(A) squeeze into crevices
(B) devour all available food in a short time
(C) suck up mud or sand
(D) live at a low metabolic rate
12. The fourth paragraph of the passage Primarily discusses
(A) the reproduction of sea cucumbers
(B) the food sources of sea cucumbers
(C) the eating habits of sea cucumbers
(D) threats to sea cucumbers' existence
13. The phrase "casts off" in line 24 is closest in meaning to
(A) grows again
(B) grabs
(C) gets rid of
(D) uses as a weapon
14. Of all the characteristics of the sea cucumber, which of the following seems to fascinate the author most?
(A) What it does when threatened.
(B) Where it lives
(C) How it hides from predators
(D) What it eats.
15. Compared with other sea creatures the sea cucumber is very
(A) dangerous
(B) intelligent
(C) strange
(D) fat
16. What can be inferred about the defense mechanisms of the sea cucumber?
(A) They are very sensitive to surrounding stimuli.
(B) They are almost useless.

- (C) They require group cooperation.
- (D) They are similar to those of most sea creatures.

17. Which of the following would NOT cause a sea cucumber to release its internal organs into the water?

- (A) A touch
- (B) Food
- (C) Unusually warm water
- (D) Pollution

18. Which of the following is an example of behavior comparable with the sea cucumber living at a low metabolic rate?

- (A) An octopus defending itself with its tentacles
- (B) A bear hibernating in the winter
- (C) A pig eating constantly
- (D) A parasite living on its host's blood.

Question 19-29

A folk culture is small, isolated, cohesive, conservative, nearly self-sufficient group that is homogeneous in custom and race, with a strong family or clan structure and highly developed rituals. Order is maintained through sanctions based in the religion or family, and interpersonal relationships are strong. Tradition is paramount, and change comes infrequently and slowly. There is relatively little division of labor into specialized duties. Rather, each person is expected to perform a great variety of tasks, though duties many differ between the sexes. Most goods are handmade, and a subsistence economy prevails. Individualism is weakly developed in folk cultures, as are social classes. Unaltered folk cultures no longer exist in industrialized countries such as the United States and Canada. Perhaps the nearest modern-equivalent in Anglo-America is the Amish, a German American farming sect that largely renounces the products and labor saving device of the industrial age. In Amish areas, horse - drawn buggies still serve as a local transportation device, and the faithful are not permitted to own automobiles. The Amish's central religious concept of Demut, "humility", clearly reflects the weakness of individualism and social class so typical of folk cultures, and there is a corresponding strength of Amish group identity. Rarely do the Amish marry outside their sect. The religion, a variety of the Mennonite faith, provides the principal mechanism for maintaining -order.

By contrast, a popular culture is a large heterogeneous group, often highly individualistic and constantly changing. Relationships tend to be impersonal, and a pronounced division of labor exists, leading to the establishment of many specialized professions. Secular institutions of control such as the police and army take the place of religion and family in maintaining order, and a money-based economy prevails. Because of these contrasts, "popular" may be viewed as clearly different from "folk". The popular is replacing the folk in industrialized countries and in many developing nations, Folk-made objects give way to their popular equivalent, usually because the popular item is more quickly or cheaply produced, is easier or time saving to use, or lends more prestige to the owner.

19. What does the passage mainly discuss?
- (A) Two decades in modern society.
 - (B) The influence of industrial technology
 - (C) The characteristics of "folk" and "popular" societies.
 - (D) The specialization of labor in Canada and United States
20. The word "homogeneous" in line 2 is closest in meaning to
- (A) uniform
 - (B) general
 - (C) primitive
 - (D) traditional
21. Which of the following is typical of folk cultures?
- (A) There is a money- based economy.
 - (B) Social change occurs slowly.
 - (C) Contact with other cultures is encouraged
 - (D) Each person develops one specialized skill.
22. What does the author imply about the United States and Canada?
- (A) They value folk cultures
 - (B) They have no social classes.
 - (C) They have popular cultures.
 - (D) They do not value individualism.
23. The phrase "largely renounces" in line 11 is closest in meaning to
- (A) generally rejects
 - (B) greatly modifies
 - (C) loudly declares
 - (D) often criticizes
24. What is the main source of order in Amish society?
- (A) The government
 - (B) The economy
 - (C) The clan structure
 - (D) The religion
25. Which of the following statements about Amish beliefs does the passage support?
- (A) A variety of religious practices is tolerated.
 - (B) Individualism and competition are important.
 - (C) Pre-modern technology is preferred.
 - (D) People are defined according to their class.
26. Which of the following would probably NOT be found in a folk culture?
- (A) A carpenter
 - (B) A farmer

- (C) A weaver
- (D) A banker

27. The word "prevails" in line 23 is closest in meaning to

- (A) dominates
- (B) provides
- (C) develops
- (D) invests

28. The word "their" in line 26 refer to

- (A) folk
- (B) nations
- (C) countries
- (D) objects

29. Which of the following is NOT given as a reason why folk-made objects are replaced by mass-produced objects?

- (A) Cost
- (B) Prestige
- (C) Quality
- (D) Convenience

Question 30-40

Many of the most damaging and life-threatening types of weather - torrential rains, severe thunderstorms, and tornadoes - begin quickly, strike suddenly, and dissipate rapidly, devastating small regions while leaving neighboring areas untouched. One such event, a tornado, struck the northeastern section of Edmonton, Alberta, in July 1987. Total damages from the tornado exceeded \$250 million, the highest ever for any Canadian storm. Conventional computer models of the atmosphere have limited value in predicting short - lived local storms like the Edmonton tornado, because the available weather data are generally not detailed enough to allow computers to discern the subtle atmospheric changes that precede these storms. In most nations, for example, weather -balloon observations are taken just once every twelve hours at locations typically separated by hundreds of miles. With such limited data, conventional forecasting models do a much better job predicting general weather conditions over large regions than they do forecasting specific local events.

Until recently, the observation - intensive approach needed for accurate, very short - range forecasts, or "Nowcasts," was not feasible. The cost of equipping and operating many thousands of conventional weather stations was prohibitively high, and the difficulties involved in rapidly collecting and processing the raw weather data from such a network were insurmountable. Fortunately, scientific and technological advances have overcome most of these problems. Radar systems, automated weather instruments, and satellites are all capable of making detailed, nearly continuous observation over large regions at a relatively low cost. Communications satellites can transmit data around the world cheaply and instantaneously, and modern computers can quickly compile and analyzing this large volume of weather information. Meteorologists and computer scientists now work together to design computer programs and video equipment capable of transforming raw weather data into words, symbols, and vivid graphic displays that forecasters can interpret easily and quickly. As meteorologists have begun using these new technologies in weather forecasting offices, Nowcasting is becoming a reality.

30. What does the passage mainly discuss?
(A) Computers and weather
(B) Dangerous storms
(C) Weather forecasting
(D) Satellites
31. Why does the author mention the tornado in Edmonton, Canada?
(A) To indicate that tornadoes are common in the summer
(B) To give an example of a damaging storm
(C) To explain different types of weather
(D) To show that tornadoes occur frequently in Canada
32. The word "subtle" in line 8 is closest in meaning to
(A) complex
(B) regular
(C) imagined
(D) slight
33. Why does the author state in line 10 that observations are taken "just once every twelve hours?"
(A) To indicate that the observations are timely
(B) To show why the observations are of limited value
(C) To compare data from balloons and computers
(D) To give an example of international cooperation
34. The word "they" in line 13 refers to
(A) models
(B) conditions
(C) regions
(D) events
35. Which of the following is NOT mentioned as an advance in short - range weather forecasting?
(A) Weather balloons
(B) Radar systems
(C) Automated instruments
(D) Satellites
36. The word "compile" in line 23 is closest in meaning to
(A) put together
(B) look up
(C) pile high
(D) work over
37. With Nowcasting, it first became possible to provide information about
(A) short-lived local storms

- (B) radar networks
 - (C) long - range weather forecasts
 - (D) general weather conditions
38. The word "raw" in line 25 is closest in meaning to
- (A) stormy
 - (B) inaccurate
 - (C) uncooked
 - (D) unprocessed
39. With which of the following statements is the author most likely to agree?
- (A) Communications satellites can predict severe weather.
 - (B) Meteorologists should standardize computer programs.
 - (C) The observation - intensive approach is no longer useful.
 - (D) Weather predictions are becoming more accurate.
40. Which of the following would best illustrate Nowcasting?
- (A) A five-day forecast
 - (B) A warning about a severe thunderstorm on the radio
 - (C) The average rainfall for each month
 - (D) A list of temperatures in major cities

People in the United States in the nineteenth century were haunted by the prospect that unprecedented change in the nation's economy would bring social chaos. In the years following 1820, after several decades of relative stability, the economy entered a period of sustained and extremely rapid growth that continued to the end of the nineteenth century. Accompanying that growth was a structural change that featured increasing economic diversification and a gradual shift in the nation's labor force from agriculture to manufacturing and other nonagricultural pursuits.

Although the birth rate continued to decline from its high level of the eighteenth and early nineteenth century, the population roughly doubled every generation during the rest of the nineteenth century. As the population grew, its makeup also changed. Massive waves of immigration brought new ethnic groups into the country. Geographic and social mobility - downward as well as upward - touched almost everyone. Local studies indicate that nearly three-quarters of the population - in the North and South, in the emerging cities of the Northeast, and in the restless rural counties of the West - changed their residence each decade. As a consequence, historian David Donald has written, "Social atomization affected every segment of society," and it seemed to many people that "all the recognized values of orderly civilization were gradually being eroded." Rapid industrialization and increased geographic mobility in the nineteenth century had special implications for women because these tended to magnify social distinctions. As the roles men and women played in society became more rigidly defined, so did the roles they played in the home. In the context of extreme competitiveness and dizzying social change, the household lost many of its earlier functions and the home came to serve as a haven of tranquillity and order. As the size of families decreased, the roles of husband and wife became more clearly differentiated than ever before. In the middle class especially, men participated in the productive economy while women ruled the home and served as the custodians of civility and culture. The intimacy of marriage that was common in earlier periods was rent, and a gulf that at times seemed unbridgeable was created between husbands and wives.

41. What does the passage mainly discuss?
- (A) The economic development of the United States in the eighteenth century
- (B) Ways in which economic development led to social changes in the United States
- (C) Population growth in the western United States
- (D) The increasing availability of industrial jobs for women in the United States
42. The word "Prospect" in line 1 is closest in meaning to
- (A) regret
- (B) possibility
- (C) theory
- (D) circumstance
43. According to the passage, the economy of the United States between 1820 and 1900 was
- (A) expanding
- (B) in sharp decline
- (C) stagnate
- (D) disorganized
44. The word "roughly" in line 9 is closest in meaning to
- (A) harshly
- (B) surprisingly
- (C) slowly
- (D) approximately
45. The word "its" in line 10 refers to
- (A) century
- (B) population
- (C) generation
- (D) birth rate
46. According to the passage, as the nineteenth century progressed, the people of the United States
- (A) emigrated to other countries
- (B) often settled in the West
- (C) tended to change the place in which they lived
- (D) had a higher rate of birth than ever before
47. Which of the following best describes the society about which David Donald wrote?
- (A) A highly conservative society that was resistant to new ideas
- (B) A society that was undergoing fundamental change
- (C) A society that had been gradually changing since the early 1700's
- (D) A nomadic society that was starting permanent settlements
48. The word "magnify" in line 20 is closest in

- meaning to
(A) solve
(B) explain
(C) analyze
(D) increase

49. Which of the following is NOT mentioned as an example of the social changes occurring in the United States after 1820?
(A) Increased social mobility
(B) Increased immigration
(C) Significant movement of population
(D) Strong emphasis on traditional social values

50. The word "distinctions" in line 21 is closest in meaning to
(A) Differences
(B) Classes
(C) Accomplishments
(D) characteristics

TOFEL 3

Questions 1-12

Orchids are unique in having the most highly developed of all blossoms, in which the usual male and female reproductive organs are fused in a single structure called the column. The column is designed so that a single pollination will fertilize hundreds of thousands, and in some cases millions, of seeds, so microscopic and light they are easily carried by the breeze. Surrounding the column are three sepals and three petals, sometimes easily recognizable as such, often distorted into gorgeous, weird, but always functional shapes. The most noticeable of the petals is called the labellum, or lip. It is often dramatically marked as an unmistakable landing strip to attract the specific insect the orchid has chosen as its pollinator.

To lure their pollinators from afar, orchids use appropriately intriguing shapes, colors and scents. At least 50 different aromatic compounds have been analyzed in the orchid family, each blended to attract one or at most a few species of insects or birds. Some orchids even change their scents to interest different insects at different times.

Once the right insect has been attracted, some orchids present all sorts of one-way obstacle courses to make sure it does not leave until pollen has been accurately placed or removed. By such ingenious adaptations to specific pollinators, orchids have avoided the hazards of rampant crossbreeding in the wild, assuring the survival of species as discrete identities. At the same time they have made themselves irresistible to collectors.

1. What does the passage mainly discuss?
(A) Birds
(B) Insects
(C) Flowers
(D) Perfume
2. The orchid is unique because of
(A) the habitat in which it lives
(B) the structure of its blossom
(C) the variety of products that can be made from it
(D) the length of its life
3. The word "fused" in line 2 is closest in meaning to
(A) combined
(B) hidden
(C) fertilized
(D) produced
4. How many orchid seeds are typically pollinated at one time?
(A) 200
(B) 2,000
(C) 20,000
(D) 200,000
5. Which of the following is a kind of petal?
(A) The column
(B) The sepal
(C) The stem
(D) The labellum
6. The labellum(line 7) is most comparable to
(A) a microscope
(B) an obstacle course
(C) an airport runway
(D) a racetrack
7. The word "lure" in line 10 is closest in meaning to
(A) attract
(B) recognize
(C) follow
(D) help
8. Which of the following is NOT mentioned as a means by which an orchid attracts insects?
(A) size
(B) Shape
(C) Color
(D) Perfume

9. The word "their" in line 13 refers to
(A) orchids
(B) birds
(C) insects
(D) species
10. Which of the following statements about orchids' scents does the passage support?
(A) They are effective only when an insect is near the blossom.
(B) Harmful insects are repelled by them.
(C) They are difficult to tell apart.
(D) They may change at different times.
11. The word "placed" in line 15 is closest in meaning to
(A) estimated
(B) measured
(C) deposited
(D) identified
12. The word "discrete" in line 18 is closest in meaning to
(A) complicated
(B) separate
(C) inoffensive
(D) functional

Questions 13-22

One of the most important social developments that helped to make possible a shift in thinking about the role of public education was the effect of the baby boom of the 1950's and 1960's on the schools. In the 1920's, but especially in the Depression conditions of the 1930's, the United States experienced a declining birth rate-every thousand women aged fifteen to forty -four gave birth to about 118 live children in 1920, 89.2 in 1930, 75.8 in 1936, and 80 in 1940. With the growing prosperity brought on by the Second World War and the economic boom that followed it, young people married and established households earlier and began to raise larger families than had their predecessors during the Depression. Birth rates rose to 102 per thousand in 1946. 106.2 in 1950 and 118 in 1955. Although economics was probably the most important determinant, it is not the only explanation for the baby boom. The increased value placed on the idea of the family also helps to explain this rise in birth rates. The baby boomers began streaming into the first grade by the mid-1940's and became a flood by 1950. The public school system suddenly found itself overtaxed. While the number of schoolchildren rose because of wartime and postwar conditions, these same conditions made the schools even less prepared to cope with the flood. The wartime economy meant that few new schools were built between 1940 and 1945. Moreover, during the war and in the boom times that followed large numbers of teachers left their profession for better - paying jobs elsewhere in the economy.

Therefore, in the 1950's and 1960's, the baby boom hit an antiquated and inadequate school system. Consequently, the "custodial rhetoric" of the 1930's and early 1940's no longer made sense; that is, keeping youths aged sixteen and older out of the labor market by keeping them in school could no longer be a high priority for an institution unable to find space and staff to teach younger children aged five to sixteen. With the baby boom, the focus of educators and of laymen interested in education inevitably turned toward the lower grades and back to basic academic skills and discipline. The system no longer had much interest in offering nontraditional new and extra services to older youths.

13. What does the passage mainly discuss?
(A) the teaching profession during the baby boom
(B) birth rates in United States in the 1930's and 1940's
(C) the impact of the baby boom on public education
(D) the role of the family in the 1950's and 1960's
14. The word "it" in line 11 refers to
(A) 1995
(B) economics
(C) the baby boom
(D) value
15. The word "overtaxed" in the 14 is closest in meaning to
(A) well prepared
(B) plentifully supplied
(C) heavily burdened
(D) charged too much
16. The public schools of the 1950's and 1960's faced all of the following problems EXCEPT
(A) a declining number of students
20. The word "inevitably" in line 25 is closest in meaning to
(A) unwillingly
(B) impartially
- (B) old-fashioned facilities
(C) a shortage of teachers
(D) an inadequate number of school buildings
17. According to the passage, why did teachers leave the teaching profession after the outbreak of the war?
(A) They needed to be retrained.
(B) They were dissatisfied with the curriculum.
(C) Other jobs provided higher salaries.
(D) Teaching positions were scarce.
18. The word "inadequate" in line 20 is closest in meaning to
(A) deficient
(B) expanded
(C) innovative
(D) specialized
19. The "custodial rhetoric" mentioned in line 21 refers to
(A) raising a family
(B) keeping older individuals in school
(C) running an orderly household
(D) maintaining discipline in the classroom
- (C) irrationally
(D) unavoidably
21. Where in the passage does the author refer to

the attitude of Americans toward raising a family in the 1950's and 1960's?

- (A) Lines 1-3
- (B) Lines 11-12
- (C) Lines 20-21
- (D) Lines 24-26

22 Which of the following best characterizes the organization of the passage?

- (A) The second paragraph presents the effect of circumstances described in the first paragraph.
- (B) The second paragraph provides a fictional account to illustrate a problem presented in the first paragraph.
- (C) The second paragraph argues against a point made in the first paragraph.
- (D) The second paragraph introduces a problem not mentioned in the first paragraph.

Questions 23-32

Nineteenth-century writers in the United States, whether they wrote novels, short stories, poems or plays were powerfully drawn to the railroad in its golden years. In fact, writers responded to the railroads as soon as the first were built in the 1830's. By the 1850's, the railroad was a major presence in the life of the nation. Writers such as Ralph Waldo Emerson and Henry David Thoreau saw the railroad both as a boon to democracy and as an object of suspicion. The railroad could be and was a despoiler of nature furthermore, in its manifestation of speed and noise, it might be a despoiler of human nature as well. By the 1850's and 1860's, there was a great distrust among writer and intellectuals of the rapid industrialization of which the railroad was a leading force. Deeply philosophical historians such as Henry Adams lamented the role that the new frenzy for business was playing in eroding traditional values. A distrust of industry and business continued among writers throughout the rest of the nineteenth century and into the twentieth.

For the most part, the literature in which the railroad plays an important role belongs to popular culture rather than to the realm of serious art. One thinks of melodramas, boy's books, thrillers, romances and the like rather than novels of the first rank. In the railroads' prime years, between 1890 and 1920, there were a few individuals in the United States, most of them with solid railroading experience behind them, who made a profession of writing about railroading - works offering the ambience of stations yards and locomotive cabs. These writers who can genuinely be said to have created a genre, the "railroad novel" are now mostly forgotten, their names having faded from memory. But anyone who takes the time to consult their fertile writings will still find a treasure trove of information about the place of the railroad in the life of the United States.

23. With which of the following topics is the passage mainly concerned?
- (A) The role of the railroad in the economy of the United States
(B) Major nineteenth - century writers
(C) The conflict between expanding industry and preserving nature
(D) The railroad as a subject for literature.
24. The word "it" in line 7 refers to
- (A) railroad
(B) manifestation
(C) speed
(D) nature
25. In the first paragraph, the author implies that writers reactions to the development of railroads were
- (A) highly enthusiastic
(B) both positive and negative
(C) unchanging
(D) disinterested
26. The word "lamented" in line 10 is closest in meaning to
- (A) complained about
(B) analyzed
(C) explained
(D) reflected on
27. According to the passage, the railroad played a significant role in literature in all of the following kinds of books EXCEPT
- (A) thrillers
(B) boys' books
(C) important novels
(D) romances
28. The phrase "first rank" in line 16 is closest in meaning to
- (A) largest category
(B) highest quality
(C) earliest writers
(D) most difficult language
29. The word "them" in line 18 refers to
- (A) novels
(B) years
(C) individuals
(D) works
30. The author mentions all of the following as being true about the literature of railroads EXCEPT that
- (A) many of its writers had experience working on railroads
(B) many of the books were set in railroad stations and yards
(C) the books were well known during the

- railroads' prime years
- (D) quite a few of the books are still popular today
31. The words "faded from" in line 21 are closest in meaning to
- (A) grew in
(B) disappeared from
(C) remained in
(D) developed from
32. What is the author's attitude toward the "railroad novels" and other books about railroads written between 1890 and 1920?
- (A) They have as much literary importance as the books written by Emerson, Thoreau and Adams.
(B) They are good examples of the effects industry and business had on the literature of the United States.
(C) They contributed to the weakening of traditional values.
(D) They are worth reading as sources of knowledge about the impact of railroads on life in the United States

Questions 33-34

By the 1820's in the United States, when steamboats were common on western waters, these boats were mostly powered by engines built in the West (Pittsburgh, Cincinnati or Louisville), and of a distinctive western design specially suited to western needs. The first steam engines in practical use in England and the United States were of low-pressure design. This was the type first developed by James Watt, then manufactured by the firm of Boulton and Watt, and long the standard industrial engine. Steam was accumulated in a large, double-acting vertical cylinder, but the steam reached only a few pounds of pressure per square inch. It was low-pressure engines of this type that were first introduced into the United States by Robert Fulton. He imported such a Boulton and Watt engine from England to run the Clermont. But this type of engine was expensive and complicated, requiring many precision-fitted moving parts.

The engine that became standard on western steamboats was of a different and novel design. It was the work primarily of an unsung hero of American industrial progress Oliver Evans (1755-1819). The self-educated son of a Delaware farmer, Evans early became obsessed by the possibilities of mechanized production and steam power. As early as 1802 he was using a stationary steam engine of high-pressure design in his mill. Engines of this type were not unknown, but before Evans they were generally considered impractical and dangerous.

Within a decade the high-pressure engine, the new type had become standard on western waters. Critics ignorant of western conditions often attacked it as wasteful and dangerous. But people who really knew the Ohio, the Missouri and the Mississippi insisted with good reasons, that it was the only engine for them. In shallow western rivers the weight of vessel and engine was important, a heavy engine added to the problem of navigation. The high-pressure engine was far lighter in proportion to horsepower, and with less than half as many moving parts was much easier and cheaper to repair. The main advantages of low-pressure engines were safe operation and economy of fuel consumption, neither of which meant much in the West.

33. What is the passage mainly about?
- (A) Steamboat engines in the western United States
(B) River travel in the western United States
(C) A famous United States inventor
(D) The world's first practical steamboat
34. What was the Clermont (line10)?
- (A) A river
(B) A factory
(C) A boat
(D) An engine
35. Who developed the kind of steam engine used on western steamboats?
- (A) Watt
(B) Boulton
(C) Fulton
(D) Evans
36. The word "novel" in line 14 is closest in meaning to
- (A) fictional
(B) intricate
(C) innovative
(D) powerful
37. What opinion of Evans is suggested by the use of the term "unsung hero" in line 14?
- (A) More people should recognize the importance of his work.
(B) More of his inventions should be used today.
(C) He should be credited with inventing the steam engine.
(D) More should be learned about his early life.
38. What does the author imply about Evans?
- (A) He went to England to learn about steam power.
(B) He worked for Fulton.
(C) He traveled extensively in the West.
(D) He taught himself about steam engines.
39. The word "stationary" in line 17 is closest in meaning to
- (A) single
(B) fixed
(C) locomotive
(D) modified
(B) mechanized production and steam power
(C) possibilities
(D) steamboats
40. The word "they" in line 18 refers to
- (A) engines

41. What does the author imply about the western rivers?
- (A) It was difficult to find fuel near them.
 - (B) They flooded frequently.
 - (C) They were difficult to navigate
 - (D) They were rarely used for transportation

42. The word "it " in line 23 refers to
- (A) decade
 - (B) high-pressure
 - (C) weight
 - (D) problem

43. The word "vessel" in line 24 is closest in meaning to
- (A) fuel
 - (B) crew
 - (C) cargo
 - (D) craft

- 44 . Which of the following points was made by the critics of high-pressure engines?
- (A) They are expensive to import
 - (B) They are not powerful enough for western waters.
 - (C) They are dangerous.
 - (D) They weigh too much.

Questions 45-50

Volcanic fire and glacial ice are natural enemies. Eruptions at glaciated volcanoes typically destroy ice fields as they did in 1980 when 70 percent of Mount Saint Helens ice cover was demolished. During long dormant intervals, glaciers gain the upper hand cutting deeply into volcanic cones and eventually reducing them to rubble. Only rarely do these competing forces of heat and cold operate in perfect balance to create a phenomenon such as the steam caves at Mount Rainier National Park.

Located inside Rainier's two ice-filled summit craters, these caves form a labyrinth of tunnels and vaulted chambers about one and one-half miles in total length. Their creation depends on an unusual combination of factors that nature almost never brings together in one place. The cave-making recipe calls for a steady emission of volcanic gas and heat, a heavy annual snowfall at an elevation high enough to keep it from melting during the summer, and a bowl-shaped crater to hold the snow.

Snow accumulating yearly in Rainier's summit craters is compacted and compressed into a dense form of ice called firm, a substance midway between ordinary ice and the denser crystalline ice that makes up glaciers. Heat rising from numerous openings (called fumaroles) along the inner crater walls melts out chambers between the rocky walls and the overlying ice pack. Circulating currents of warm air then melt additional openings in the firm ice, eventually connecting the individual chambers and, in the large of Rainier's two craters, forming a continuous passageway that extends two-thirds of the way around the crater's interior.

To maintain the cave system, the elements of fire under ice must remain in equilibrium enough snow must fill the crater each year to replace that melted from below. If too much volcanic heat is discharged, the crater's ice pack will melt away entirely and the caves will vanish along with the snows of yesteryear. If too little heat is produced, the ice, replenished annually by winter snowstorms will expand, pushing against the enclosing crater walls and smothering the present caverns in solid firm ice.

45. With what topic is the passage primarily concerned?
- (A) The importance of snowfall for Mount Rainier
(B) The steam caves of Mount Rainer
(C) How ice covers are destroyed
(D) The eruption of Mount Saint Helens in 1980
46. The word "they" in line 2 refers to
- (A) fields
(B) intervals
(C) eruptions
(D) enemies
46. According to the passage long periods of volcanic inactivity can lead to a volcanic cone's
- (A) strongest eruption
(B) sudden growth
49. In line 26, "smothering" the caverns means that they would be
- (A) eliminated
(B) enlarged
(C) prevented
(D) hollowed
- (C) destruction
(D) unpredictability
47. The second paragraph mentions all of the following as necessary elements in the creation of stream caves EXCEPT
- (A) a glacier
(B) a crater
(C) heat
(D) snow
48. According to the passage, heat from Mounts Rainer's summit craters rises from.
- (A) crystalline ice
(B) firms
(C) chambers
(D) fumaroles

TOFEL 4

Questions 1-10

The word laser was coined as an acronym for Light Amplification by the Stimulated Emission of Radiation. Ordinary light, from the Sun or a light bulb, is emitted spontaneously, when atoms or molecules get rid of excess energy by themselves, without any outside intervention. Stimulated emission is different because it occurs when an atom or molecule holding onto excess energy has been stimulated to emit it as light.

Albert Einstein was the first to suggest the existence of stimulated emission in a paper published in 1917. However, for many years physicists thought that atoms and molecules always were much more likely to emit light spontaneously and that stimulated emission thus always would be much weaker. It was not until after the Second World War that physicists began trying to make stimulated emission dominate. They sought ways by which one atom or molecule could stimulate many others to emit light, amplifying it to much higher powers.

The first to succeed was Charles H. Towns, then at Columbia University in New York. Instead of working with light, however, he worked with microwaves, which have a much longer wavelength, and built a device he called a "maser" for Microwave Amplification by the Stimulated Emission of Radiation. Although he thought of the key idea in 1951, the first maser was not completed until a couple of years later. Before long, many other physicists were building masers and trying to discover how to produce stimulated emission at even shorter wavelengths.

The key concepts emerged about 1957. Townes and Arthur Schawlow, then at Bell Telephone Laboratories, wrote a long paper outlining the conditions needed to amplify stimulated emission of visible light waves. At about the same time, similar ideas crystallized in the mind of Gordon Gould, then a 37-year-old graduate student at Columbia, who wrote them down in a series of notebooks. Towns and Schawlow published their ideas in a scientific journal, *Physical Review Letter*, but Gould filed a patent application. Three decades later, people still argue about who deserves the credit for the concept of the laser.

1. The word "coined" in line 1 could best be replaced by
 - (A) created
 - (B) mentioned
 - (C) understood
 - (D) discovered
2. The word "intervention" in line 4 can best be replaced by
 - (A) need
 - (B) device
 - (C) influence
 - (D) source
3. The word "it" in line 5 refers to
 - (A) light bulb
 - (B) energy
 - (C) molecule
 - (D) atom
4. Which of the following statements best describes a laser?
 - (A) A device for stimulating atoms and molecules to emit light
 - (B) An atom in a high-energy state
 - (C) A technique for destroying atoms or molecules
 - (D) An instrument for measuring light waves
5. Why was Town's early work with stimulated emission done with microwaves?
 - (A) He was not concerned with light amplification.
 - (B) It was easier to work with longer wavelengths.
 - (C) His partner Schawlow had already begun work on the laser.
 - (D) The laser had already been developed.

6. In his research at Columbia University, Charles Townes worked with all of the following EXCEPT
- (A) stimulated emission
 - (B) microwaves
 - (C) light amplification
 - (D) a maser
7. In approximately what year was the first maser built?
- (A) 1917
 - (B) 1951
 - (C) 1953
 - (D) 1957
8. The word "emerged" in line 20 is closest in meaning to
- (A) increased
 - (B) concluded
 - (C) succeeded
 - (D) appeared
9. The word "outlining" in line 21 is closest in meaning to
- (A) assigning
 - (B) studying
 - (C) checking
 - (D) summarizing
10. Why do people still argue about who deserves the credit for the concept of the laser?
- (A) The researcher's notebooks were lost.
 - (B) Several people were developing the idea at the same time.
 - (C) No one claimed credit for the development until recently.
 - (D) The work is still incomplete.

Questions 11-21

Panel painting, common in thirteenth-and fourteenth-century Europe, involved a painstaking, laborious process. Wooden planks were joined, covered with gesso to prepare the surface for painting, and then polished smooth with special tools. On this perfect surface, the artist would sketch a composition with chalk, refine it with inks, and then begin the deliberate process of applying thin layers of egg tempera paint (egg yolk in which pigments are suspended) with small brushes. The successive layering of these meticulously applied paints produced the final, translucent colors.

Backgrounds or gold were made by carefully applying sheets of gold leaf, and then embellishing or decorating the gold leaf by punching it with a metal rod on which a pattern had been embossed. Every step in the process was slow and deliberate. The quick-drying tempera demanded that the artist know exactly where each stroke be placed before the brush met the panel, and it required the use of fine brushes. It was, therefore, an ideal technique for emphasizing the hard linear edges and pure, fine areas of color that were so much a part of the overall aesthetic of the time. The notion that an artist could or would dash off an idea in a fit of spontaneous inspiration was completely alien to these deliberately produced works.

Furthermore, making these paintings was so time-consuming that it demanded assistance. All such work was done by collective enterprise in the workshops. The painter or master who is credited with having created the painting may have designed the work and overseen its production, but it is highly unlikely that the artist's hand applied every stroke of the brush. More likely, numerous assistants, who had been trained to imitate the artist's style, applied the paint. The carpenter's shop probably provided the frame and perhaps supplied the panel, and yet another shop supplied the gold. Thus, not only many hands, but also many shops were involved in the final product.

In spite of problems with their condition, restoration, and preservation many panel paintings have survived, and today many of them are housed in museum collections.

11. What aspect of panel paintings does the passage mainly discuss?
 - (A) Famous example
 - (B) Different styles
 - (C) Restoration
 - (D) Production
12. According to the passage, what was the first step in making a panel painting?
 - (A) Mixing the paint
 - (B) Preparing the panel
 - (C) Buying the gold leaf
 - (D) Making ink drawings
13. The word "it" in line 4 refers to
 - (A) chalk
 - (B) composition
 - (C) artist
 - (D) surface
14. The word "deliberate" in line 5 is closest in meaning to
 - (A) decisive
 - (B) careful
 - (C) natural
 - (D) unusual
15. Which of the following processes produced the translucent colors found on panel paintings?
 - (A) Joining wooden planks to form large sheets
 - (B) Polishing the gesso
 - (C) Applying many layers of paint
 - (D) Covering the background with gold leaf
16. What characteristic of tempera paint is mentioned in the passage?
 - (A) It dries quickly
 - (B) It is difficult to make
 - (C) It dissolves easily
 - (D) It has to be applied directly to wood
17. The word "demanded" in line 17 is closest in meaning to
 - (A) ordered
 - (B) reported
 - (C) required
 - (D) questioned
18. The "collective enterprise" mentioned in line 18 includes all of the following EXCEPT
 - (A) supplying the gold leaf
 - (B) building the panels
 - (C) applying the paint
 - (D) selling the painting
19. The word "imitate" in line 22 is closest in meaning to

- (A) copy
- (B) illustrate
- (C) promote
- (D) believe in

20. The author mention all of the following as problems with the survival of panel paintings EXCEPT

- (A) condition
- (B) theft
- (C) preservation
- (D) restoration

21. The word "them" in line 27 refers to

- (A) problem
- (B) condition, restoration, preservation
- (C) panel paintings
- (D) museum collections

Questions 22-32

Grows are probably the most frequently met and easily identifiable members of the native fauna of the United States. The great number of tales, legends, and myths about these birds indicates that people have been exceptionally interested in them for a long time. On the other hand, when it comes to substantive-particularly behavioral-information, crows are less well known than many comparably common species and, for that matter, not a few quite uncommon ones: the endangered California condor to cite one obvious example. There are practical reasons for this.

Grows are notoriously poor and aggravating subjects for field research. Keen observers and quick learners, they are astute about the intentions of other creatures, including researchers, and adapt at avoiding them. Because they are so numerous, active, and monochromatic, it is difficult to distinguish one crow from another. Bands, radio transmitters, or other identifying devices can be attached to them, but this of course requires catching live crows, who are among the wariest and most untrappable of birds.

Technical difficulties aside, crow research is daunting because the ways of the birds are so complex and various. As preeminent generalists, members of this species ingeniously exploit a great range of habitats and resources, and they can quickly adjust to changes in their circumstances. Being so educable, individual birds have markedly different interests and inclinations, strategies and scams. For example, one pet crow learned how to let a dog out of its kennel by pulling the pin on the door. When the dog escaped, the bird went into the kennel and ate its food.

22. What is the main topic of the passage?
- (A) The ways in which crows differ from other common birds
- (B) The myths and legends about crows
- (C) The characteristics that make crows difficult to study
- (D) The existing methods for investigating crow behavior.
23. According to the first paragraph, what evidence is there that crows have interested people for a long time?
- (A) The large number of stories about crows
- (B) The frequency with which crows are sighted
- (C) The amount of research that has been conducted on crows
- (D) The ease with which crows are identified
24. The word "comparably" in line 5 is closest in meaning to
- (A) interestingly
- (B) similarly
- (C) otherwise
- (D) sometimes
25. In line 6, the author mentions the endangered California condor as an example of a species that is
- (A) smaller than the crow
- (B) easily identifiable
- (C) featured in legends
- (D) very rare
26. The word "them" in line 10 refers to
- (A) crows
- (B) subjects
- (C) intentions
- (D) researchers
27. According to the second paragraph, crows are poor subjects for field research for all of the following reasons EXCEPT:
- (A) They can successfully avoid observers
- (B) They are hard to distinguish from one another
- (C) They can be quite aggressive
- (D) They are difficult to catch
28. In the second paragraph, the author implies that using radio transmitters would allow a researcher who studies crow to
- (A) follow flocks of crows over long distances
- (B) identify individual crows
- (C) record the times when crows are most active
- (D) help crows that become sick or injured
29. According to the third paragraph, which of the following is true about crows?
- (A) They seldom live in any one place for

- very long
- (B) They thrive in a wide variety of environments.
- (C) They have marked preferences for certain kinds of foods
- (D) They use up the resources in one area before moving to another
30. In lines 19, the word "inclinations" is closest in meaning to
- (A) tricks
- (B) opportunities
- (C) preferences
- (D) experiences
31. In lines 10-21, the author mentions a pet crow to illustrate which of the following?
- (A) The clever ways that crows solve problems
- (B) The differences between pet crows and wild crows
- (C) The ease with which crows can be tamed
- (D) The affection that crows show to other creatures
32. Which of the following statements is supported by the passage?
- (A) Crows have relatively long lives
- (B) Crows have been tamed
- (C) Crows are usually solitary
- (D) Crows are very intelligent

Questions 33-41

In the early days of the United States, postal charges were paid by the recipient and Charges varied with the distance carried. In 1825, the United States Congress permitted local postmasters to give letters to mail carriers for home delivery, but these carriers received no government salary and their entire compensation on what they were paid by the recipients of individual letters.

In 1847 the United States Post Office Department adopted the idea of a postage stamp, which of course simplified the payment for postal service but caused grumbling by those who did not like to prepay. Besides, the stamp covered only delivery to the post office and did not include carrying it to a private address. In Philadelphia, for example, with a population of 150,000, people still had to go to the post office to get their mail. The confusion and congestion of individual citizens looking for their letters was itself enough to discourage use of the mail. It is no wonder that, during the years of these cumbersome arrangements, private letter-carrying and express businesses developed. Although their activities were only semilegal, they thrived, and actually advertised that between Boston and Philadelphia they were a half-day speedier than the government mail. The government postal service lost volume to private competition and was not able to handle efficiently even the business it had.

Finally, in 1863, Congress provided that the mail carriers who delivered the mail from the post offices to private addresses should receive a government salary, and that there should be no extra charge for that delivery. But this delivery service was at first confined to cities, and free home delivery became a mark of urbanism. As late as 1887, a town had to have 10,000 people to be eligible for free home delivery. In 1890, of the 75 million people in the United States. Fewer than 20 million had mail delivered free to their doors. The rest, nearly three-quarters of the population, still received no mail unless they went to their post office.

33. What does the passage mainly discuss?
- (A) The increased use of private mail services
- (B) The development of a government postal system
- (C) A comparison of urban and rural postal services
- (D) The history of postage stamps
34. The word "varied" in line 2 could best be replaced by
- (A) increased
- (B) differed
- (C) returned
- (D) started
35. Which of the following was seen as a disadvantage of the postage stamp?
- (A) It had to be purchased by the sender in advance.
- (B) It increased the cost of mail delivery
- (C) It was difficult to affix to letters.
- (D) It was easy to counterfeit.
36. Why does the author mention the city to Philadelphia in line 9?
- (A) It was the site of the first post office in the United States
- (B) Its postal service was inadequate for its population
- (C) It was the largest city in the United States in 1847
- (D) It was commemorated by the first United States postage stamp
37. The word "cumbersome" in line 13 is closest in meaning to
- (A) burdensome
- (B) handsome
- (C) loathsome
- (D) quarrelsome
38. The word "they" in line 15 refers to
- (A) Boston and Philadelphia
- (B) businesses
- (C) arrangements
- (D) letters

39. The private postal services of the nineteenth century claimed that they could do which of the following better than the government?
- (A) Deliver a higher volume of mail
 - (B) Deliver mail more cheaply.
 - (C) Deliver mail faster.
 - (D) Deliver mail to rural areas
40. In 1863 the United States government began providing which of the following to mail carriers?
- (A) A salary
 - (B) Housing
 - (C) Transportation
 - (D) Free postage stamps
41. The word "Confined" in line 21 is closest in meaning to
- (A) granted
 - (B) scheduled
 - (C) limited
 - (D) recommended

Questions 42-50

Archaeology has long been an accepted tool for studying prehistoric cultures. Relatively recently the same techniques have been systematically applied to studies of the more immediate past. This has been called "historical archaeology," a term that is used in the United States to refer to any archaeological investigation into North American sites that postdate the arrival of Europeans.

Back in the 1930's and 1940's, when building restoration was popular, historical archaeology was primarily a tool of architectural reconstruction. The role of archaeologists was to find the foundations of historic buildings and then take a back seat to architects.

The mania for reconstruction had largely subsided by the 1950's and 1960's. Most people entering historical archaeology during this period came out of university anthropology departments, where they had studied prehistoric cultures. They were, by training, social scientists, not historians, and their work tended to reflect this bias. The questions they framed and the techniques they used were designed to help them understand, as scientists, how people behaved. But because they were treading on historical ground for which there was often extensive written documentation and because their own knowledge of these periods was usually limited, their contributions to American history remained circumscribed. Their reports, highly technical and sometimes poorly written, went unread.

More recently, professional archaeologists have taken over. These researchers have sought to demonstrate that their work can be a valuable tool not only of science but also of history, providing fresh insights into the daily lives of ordinary people whose existences might not otherwise be so well documented. This newer emphasis on archaeology as social history has shown great promise, and indeed work done in this area has led to a reinterpretation of the United States past.

In Kingston, New York, for example, evidence has been uncovered that indicates that English goods were being smuggled into that city at a time when the Dutch supposedly controlled trading in the area. And in Sacramento an excavation at the site of a fashionable nineteenth-century hotel revealed that garbage had been stashed in the building's basement despite sanitation laws to the contrary.

42. What does the passage mainly discuss?
- (A) Why historical archaeology was first developed
- (B) How the methods and purpose of historical archaeology have changed
- (C) The contributions architects make to historical archaeology.
- (D) The attitude of professional archaeologists toward historical archaeology
43. According to the first paragraph. What is a relatively new focus in archaeology?
- (A) Investigating the recent past
- (B) Studying prehistoric cultures
- (C) Excavating ancient sites in what is now the United States.
- (D) Comparing findings made in North America and in Europe
44. According to the passage, when had historical archaeologists been trained as anthropologists?
- (A) Prior to the 1930's
- (B) During the 1930's and 1940's
- (C) During the 1950's and 1960's
- (D) After the 1960's
45. The word "framed" in line 13 is closest in meaning to
- (A) understood
- (B) read
- (C) avoided
- (D) posed
46. In the third paragraph, the author implies that the techniques of history and the techniques of social science are
- (A) equally useful in studying prehistoric cultures
- (B) quite different from each other
- (C) usually taught to students of archaeology
- (D) both based on similar principles
47. The phrase "their contributions" in line 16 refers to the contributions of
- (A) social scientists
- (B) prehistoric cultures
- (C) historians
48. The author mentions an excavation at the site of a hotel in Sacramento in order to give an

- example of
- (A) a building reconstruction project
 - (B) the work of the earliest historical archaeologists
 - (C) a finding that conflicts with written records
 - (D) the kind of information that historians

routinely examine

49. The word "supposedly" in line 26 is closest in meaning to
- (A) ruthlessly
 - (B) tightly
 - (C) barely
 - (D) seemingly
50. The word "sanitation" in line 29 is closest in meaning to
- (A) city
 - (B) housing
 - (C) health
 - (D) trade

TOFEL 5

Question 1-8

When Jules Verne wrote *Journey to the Center of the Earth* in 1864, there were many conflicting theories about the nature of the Earth's interior. Some geologists thought that it contained a highly compressed ball of incandescent gas, while others suspected that it consisted of separate shells, each made of a different material. Today, well over a century later, there is still little direct evidence of what lies beneath our feet. Most of our knowledge of the Earth's interior comes not from mines or boreholes, but from the study of seismic waves - powerful pulses of energy released by earthquakes.

The way that seismic waves travel shows that the Earth's interior is far from uniform. The continents and the seabed are formed by the crust - a thin sphere of relatively light, solid rock. Beneath the crust lies the mantle, a very different layer that extends approximately halfway to the Earth's center. There the rock is the subject of a battle between increasing heat and growing pressure.

In its high levels, the mantle is relatively cool; at greater depths, high temperatures make the rock behave more like a liquid than a solid. Deeper still, the pressure is even more intense, preventing the rock from melting in spite of a higher temperature.

Beyond a depth of around 2,900 kilometers, a great change takes place and the mantle gives way to the core. Some seismic waves cannot pass through the core and others are bent by it. From this and other evidence, geologists conclude that the outer core is probably liquid, with a solid center. It is almost certainly made of iron, mixed with smaller amounts of other elements such as nickel. The conditions in the Earth's core make it a far more alien world than space. Its solid iron heart is subjected to unimaginable pressure and has a temperature of about 9,000oF. Although scientists can speculate about its nature, neither humans nor machines will ever be able to visit it.

1. The word "conflicting" in line 2 is closest in meaning to
 - (A) controlling
 - (B) outdated
 - (C) opposing
 - (D) important
2. What is today's richest source of information about the Earth's interior for geologists?
 - (A) Boreholes
 - (B) Shells
 - (C) Seismic waves
 - (D) Mines
3. The word "There" in line 12 refers to the
 - (A) mantle
 - (B) crust
 - (C) seabed
 - (D) Earth's center.
4. Which of the following is a primary characteristic of the Earth's mantle?
 - (A) Light, solid rock
 - (B) Uniformity of composition
 - (C) Dramatically increasing pressure
 - (D) Compressed, incandescent gas
5. The phrase "gives way to" in line 18 is closest in meaning to
 - (A) runs along
 - (B) rubs against
 - (C) turns into
 - (D) floats on
6. The word "it" in line 19 refers to
 - (A) mantle
 - (B) core
 - (C) change
 - (D) depth
7. Why does the author state in line 22 that the Earth's core is "more alien" than space?
 - (A) Government funds are not available to study the Earth's core.
 - (B) Scientists aren't interested in the characteristics of the Earth's core.
 - (C) It is impossible to go to the Earth's core to do research.
 - (D) The Earth's core is made of elements that are dangerous to humans.

8. The word "speculate" in line 24 is
closest in meaning to

- (A) report
- (B) learn
- (C) worry
- (D) hypothesize

Question 9-20

Despite the road improvements of the turnpike era (1790-1830). Americans continued as in colonial times to depend wherever possible on water routes for travel and transportation. The larger rivers, especially the Mississippi and the Ohio, became increasingly useful as steamboats grew in number and improved in design.

River boats carried to New Orleans the corn and other crops of northwestern farmers, the cotton and tobacco of southwestern planters. From New Orleans, ships took the cargoes on to eastern seaports. Neither the farmers of the west nor the merchants of the east were completely satisfied with this pattern of trade. Farmers could get better prices for their crops if the alternative existed of sending them directly eastward to market and merchants could sell larger quantities of their manufactured goods if these could be transported more directly and more economically to the west.

New waterways were needed. Sectional jealousies and constitutional scruples stood in the way of action by the federal government and necessary expenditures were too great for private enterprise. If extensive canals were to be dug, the job would be up to the various states.

New York was the first to act. It had the natural advantage of a comparatively level route between the Hudson River and Lake Erie, through the only break in the entire Appalachian Mountain chain. Yet the engineering tasks were imposing. The distance was more than 350 miles and there were ridges to cross and a wilderness of woods and swamps to penetrate. The Erie Canal begun in 1817 and completed in 1825, was by far the greatest construction job that Americans had ever undertaken. It quickly proved a financial success as well. The prosperity of the Erie encouraged the state to enlarge its canal system by building several branches.

The range of the New York canal system was still further extended when the states of Ohio and Indiana, inspired by the success of the Erie Canal, provided water connections between Lake Erie and the Ohio River.

9. What does the passage suggest was the principal route for transporting crops to the east prior in 1825?
- (A) River to road
 - (B) Canal to river
 - (C) River to ocean
 - (D) Road to canal.
10. It can be inferred from the passage that shipping cargo east by way of New Orleans was
- (A) Advantageous for manufactures
 - (B) Inexpensive for merchants
 - (C) Not economical for farmers
 - (D) Considered economical by the government
11. The word "alternative" in line 9 is closest in meaning to
- (A) option
 - (B) transition
 - (C) intention
 - (D) authorization
12. The word "them" in line 9 refers to
- (A) crops
 - (B) farmers
 - (C) prices
 - (D) merchants
13. Which of the following products would a northwestern farmer in the early nineteenth century be most likely to purchase from the east?
- (A) Grain
 - (B) Vegetables
 - (C) Textiles
 - (D) Fruit.
14. According to the passage, where was the Erie Canal located?
- (A) Between Ohio and Indiana.
 - (B) Along the Appalachian Mountains
 - (C) Between Lake Erie and the Ohio River
 - (D) Across New York State.
15. The word "imposing" in line 18 could best be replaced by
- (A) impractical
 - (B) successful
 - (C) demanding
 - (D) misleading
16. The word "penetrate" in line 20 is closest in meaning to
- (A) cut down
 - (B) go through
 - (C) fill up
 - (D) take over
17. The word "its" in line 22 refers to
- (A) prosperity
 - (B) Erie
 - (C) System
 - (D) State
18. The word "extended" in line 24 is closest in meaning to
- (A) increased
 - (B) constructed

- (C) deepened
- (D) measured

19. According to the passage, Indiana and Ohio supported the development of the New York canal system by
- (A) helping to build the Erie Canal.
 - (B) Building branches to connect it with the Ohio River
 - (C) Providing much of the water for the Erie Canal.
 - (D) Contributing financially to the construction costs
20. What does the paragraph following the passage probably discuss?
- (A) Industry on Lake Erie
 - (B) Canals in Ohio and Indiana
 - (C) Sectional jealousies in Indiana and Ohio
 - (D) Travel on the Erie Canal.

Question 21-31

Legend has it that sometime toward the end of the Civil War (1861-1865) a government train carrying oxen traveling through the northern plains of eastern Wyoming was caught in a snowstorm and had to be abandoned. The driver returned the next spring to see what had become of his cargo. Instead of the skeletons he had expected to find, he saw his oxen, living, fat, and healthy. How had they survived?

The answer lay in a resource that unknowing Americans lands trampled underfoot in their haste to cross the "Great American Desert" to reach lands that sometimes proved barren. In the eastern parts of the United States, the preferred grass for forage was a cultivated plant. It grew well with enough rain, then when cut and stored it would cure and become nourishing hay for winter feed. But in the dry grazing lands of the West that familiar bluejoint grass was often killed by drought. To raise cattle out there seemed risky or even hopeless.

Who could imagine a fairy-tale grass that required no rain and somehow made it possible for cattle to feed themselves all winter? But the surprising western wild grasses did just that. They had wonderfully convenient features that made them superior to the cultivated eastern grasses. Various known as buffalo grass, grama grass, or mesquite grass, not only were they immune to drought; but they were actually preserved by the lack of summer and autumn rains. They were not juicy like the cultivated eastern grasses, but had short, hard stems. And they did not need to be cured in a barn, but dried right where they grew on the ground. When they dried in this way, they remained naturally sweet and nourishing through the winter. Cattle left outdoors to fend for themselves thrived on this hay. And the cattle themselves helped plant the fresh grass year after year for they trampled the natural seeds firmly into the soil to be watered by the melting snows of winter and the occasional rains of spring. The dry summer air cured them much as storing in a barn cured the cultivated grasses.

21. What does the passage mainly discuss?

- (A) Western migration after the Civil War
- (B) The climate of the western United States
- (C) The raising of cattle.
- (D) A type of wild vegetation

22. What can be inferred by the phrase "Legend has it" in line 1?

- (A) The story of the train may not be completely factual.
- (B) Most history books include the story of the train.
- (C) The driver of the train invented the story.
- (D) The story of the train is similar to other ones from that time period.

23. The word "they" in line 5 refers to

- (A) plains
- (B) skeletons
- (C) oxen
- (D) Americans

24. What can be inferred about the "Great American Desert" mentioned in line 7?

- (A) It was not originally assumed to be a fertile area.
- (B) Many had settled there by the 1860's.
- (C) It was a popular place to raise cattle before the Civil War.
- (D) It was not discovered until the late 1800's.

28. Which of the following was NOT one of the names given to the Western

25. The word "barren" in line 8 is closest in meaning to

- (A) lonely
- (B) dangerous
- (C) uncomfortable
- (D) infertile.

26. The word "preferred" in line 8 is closest in meaning to

- (A) ordinary
- (B) available
- (C) required
- (D) favored

27. Which of the following can be inferred about the cultivated grass mentioned in the second paragraph?

- (A) Cattle raised in the western United States refused to eat it.
- (B) It would probably not grow in the western United States.
- (C) It had to be imported into the United States.
- (D) It was difficult for cattle to digest.

grasses?

- (A) Grama grass

- (B) Bluejoint grass
- (C) Buffalo grass
- (D) Mesquite grass

29. Which of the following was NOT mentioned as a characteristic of western grasses?

- (A) They have tough stems.
- (B) They are not affected by dry weather.
- (C) They can be grown indoors.
- (D) They contain little moisture.

30. The word "hard" in line 19 is closest in meaning to

- (A) firm
- (B) severe
- (C) difficult
- (D) bitter

31. According to the passage, the cattle helped promote the growth of the wild grasses by

- (A) stepping on and pressing the seeds into the ground
- (B) naturally fertilizing the soil
- (C) continually moving from one grazing area to another
- (D) eating only small quantities of grass.

Question 32-44

Seventeenth-century houses in colonial North America were simple structures that were primarily functional carrying over traditional designs that went back to the Middle Ages. During the first half of the eighteenth century, however, houses began to show a new elegance. As wealth increased, more and more colonists built fine houses.

Since architecture was not yet a specialized profession in the colonies, the design of buildings was left either to amateur designers or to carpenters who undertook to interpret architectural manuals imported from England. Inventories of colonial libraries show an astonishing number of these handbooks for builders, and the houses erected during the eighteenth century show their influence. Nevertheless, most domestic architecture of the first three-quarters of the eighteenth century displays a wide divergence of taste and freedom of application of the rules laid down in these books.

Increasing wealth and growing sophistication throughout the colonies resulted in houses of improved design, whether the material was wood, stone, or brick. New England still favored wood, though brick houses became common in Boston and other towns, where the danger of fire gave an impetus to the use of more durable material. A few houses in New England were built of stone, but only in Pennsylvania and adjacent areas was stone widely used in dwellings. An increased use of brick in houses and outbuildings is noticeable in Virginia and Maryland, but wood remained that most popular material even in houses built by wealthy landowners. In the Carolinas, even in closely packed Charleston, wooden houses were much more common than brick houses.

Eighteenth-century houses showed great interior improvements over their predecessors. Windows were made larger and shutters removed. Large, clear panes replaced the small leaded glass of the seventeenth century. Doorways were larger and more decorative. Fireplaces became decorative features of rooms. Walls were made of plaster or wood, sometimes elaborately paneled. White paint began to take the place of blues, yellows, greens, and lead colors, which had been popular for walls in the earlier years. After about 1730, advertisements for wallpaper styles in scenic patterns began to appear in colonial newspapers.

32. What does the passage mainly discuss?
- (A) The improved design of eighteenth-century colonial houses.
 - (B) A comparison of eighteenth-century houses and modern houses.
 - (C) The decorations used in eighteenth-century houses.
 - (D) The role of carpenters in building eighteenth-century houses.
33. What was one of the main reasons for the change in architectural style in eighteenth-century North America?
- (A) More architects arrived in the colonies.
 - (B) The colonists developed an interest in classical architecture.
 - (C) Bricks were more readily available.
 - (D) The colonists had more money to spend on housing.
34. According to the passage, who was responsible for designing houses in eighteenth-century North America?
- (A) Professional architects
 - (B) Customers
 - (C) Interior decorators
 - (D) Carpenters.
35. The passage implies that the rules outlined in architectural manuals were
- (A) generally ignored
 - (B) legally binding
 - (C) not strictly adhered to
 - (D) only followed by older builders
36. The word "divergence" in line 11 is closest in meaning to
- (A) description
 - (B) development
 - (C) difference
 - (D) display
37. The word "durable" in line 15 is closest in meaning to
- (A) attractive
 - (B) expensive
 - (C) refined
 - (D) long-lasting
38. Where was stone commonly used to build houses?
- (A) Virginia
 - (B) Pennsylvania
 - (C) Boston

(D) Charleston

39. The word "dwellings" in line 17 is closest in meaning to

- (A) houses
- (B) towns
- (C) outbuildings
- (D) rural areas

40. The word "predecessors" in line 23 refers to

- (A) colonist who arrived in North America in the seventeenth century.
- (B) houses constructed before the eighteenth century
- (C) interior improvements
- (D) wooden houses in Charleston

41. The author mentions elaborately paneled walls in line 26 as an example of

- (A) how the interior design of colonial houses was improved.
- (B) why walls were made of wood or plaster.
- (C) How walls were made stronger in the eighteenth century.
- (D) What kind of wood was used for walls after 1730.

42. The word "elaborately" in line 26 is closest in meaning to

- (A) done in great detail
- (B) put together carefully
- (C) using many colors
- (D) reinforced structurally

43. What does the author imply about the use of wallpaper before 1730?

- (A) Wallpaper samples appeared in the architectural manuals.
- (B) Wallpaper was the same color as the wall paints used
- (C) Patterned wallpaper was not widely used.
- (D) Wallpaper was not used in stone house.

44. Where in the passage does the author give a reason why brick was the preferred material for houses in some urban areas?

- (A) Lines 9-11
- (B) Lines 13-15
- (C) Lines 17-19
- (D) Lines 23-24

Question 45-50

Bloodhounds are biologically adapted to trailing their prey. The process by which the nose recognizes an odor is not fully understood, but there are apparently specific receptor sites for specific odors. In one explanation, recognition occurs when a scent molecule fits into its corresponding receptor site, like a key into a lock, causing a mechanical or chemical change in the cell. Bloodhounds apparently have denser concentrations of receptor sites tuned to human scents.

When a bloodhound trails a human being, what does it actually smell? The human body, which consists of about 60 trillion living cells, sheds exposed skin at a rate of 50 million cells a day. So even a trail that has been dispersed by breezes may still seem rich to a bloodhound. The body also produces about 31 to 50 ounces of sweat a day. Neither this fluid nor the shed skin cells have much odor by themselves, but the bacteria working on both substances is another matter. One microbiologist estimates the resident bacteria population of a clean square centimeter of skin on the human shoulder at "multiples of a million." As they go about their daily business breaking down lipids, or fatty substances, on the skin, these bacteria release volatile substances that usually strike the bloodhound's nose as an entire constellation of distinctive scents.

45. What does the passage mainly discuss?
(A) Why people choose bloodhounds for household pets
(B) How a bloodhound's sense of smell works
(C) How humans compensate for an underdeveloped sense of smell
(D) The way in which bacteria work on skin cells and body sweat.
46. The author compares a scent molecule with a
(A) key
(B) lock
(C) cell
(D) bloodhound
47. In line 7, the word "it" refers to
(A) bloodhound
(B) human being
(C) smell
(D) body
48. According to the passage, how many cells of skin does the human body rid itself of every day?
(A) 60 trillion
(B) 50 million
(C) 1 million
(D) Between 31 and 50
49. In line 10, the word "rich" is used to mean that a trail is
(A) paved with precious materials
(B) a profitable business to get into
(C) a very costly undertaking
(D) filled with an abundance of clues.
50. Which of the following acts as a stimulus in the production of the human scent?
(A) Sweat
(B) Dead skin cells
(C) Bacteria
(D) Fatty substances.

TOFEL 6

Question 1-8

Both the number and the percentage of people in the United States involved in nonagricultural pursuits expanded rapidly during the half century following the Civil War, with some of the most dramatic increases occurring in the domains of transportation, manufacturing, and trade and distribution. The development of the railroad and telegraph systems during the middle third of the nineteenth century led to significant improvements in the speed, volume, and regularity of shipments and communications, making possible a fundamental transformation in the production and distribution of goods.

In agriculture, the transformation was marked by the emergence of the grain elevators, the cotton presses, the warehouses, and the commodity exchanges that seemed to so many of the nation's farmers the visible sign of a vast conspiracy against them. In manufacturing, the transformation was marked by the emergence of a "new factory system" in which plants became larger, more complex, and more systematically organized and managed. And in distribution, the transformation was marked by the emergence of the jobber, the wholesaler, and the mass retailer. These changes radically altered the nature of work during the half century between 1870 and 1920.

To be sure, there were still small workshops, where skilled craftspeople manufactured products ranging from newspapers to cabinets to plumbing fixtures. There were the sweatshops in city tenements, where groups of men and women in household settings manufactured clothing or cigars on a piecework basis. And there were factories in occupations such as metalwork where individual contractors presided over what were essentially handicraft proprietorships that coexisted within a single buildings. But as the number of wage earners in manufacturing rose from 2.7 million in 1880 to 4.5 million in 1900 to 8.4 million in 1920, the number of huge plants like the Baldwin Locomotive Works in Philadelphia burgeoned, as did the size of the average plant. (The Baldwin Works had 600 employees in 1855, 3,000 in 1875, and 8,000 in 1900.) By 1920, at least in the northeastern United States where most of the nation's manufacturing wage earners were concentrated, three-quarters of those worked in factories with more than 100 employees and 30 percent worked in factories with more than 1,000 employees.

1. The word "domains" in line 3 is closest in meaning to
 - (A) fields
 - (B) locations
 - (C) organizations
 - (D) occupations
2. What can be inferred from the passage about the agricultural sector of the economy after the Civil War?
 - (A) New technological developments had little effect on farmers.
 - (B) The percentage of the total population working in agriculture declined.
 - (C) Many farms destroyed in the war were rebuilt after the war.
 - (D) Farmers achieved new prosperity because of better rural transportation.
3. The word "fundamental" in line 7 is closest in meaning to
 - (A) possible
 - (B) basic
 - (C) gradual
 - (D) unique
4. Which of the following was NOT mentioned as part of the "new factory system?"
 - (A) A change in the organization of factories.
 - (B) A growth in the complexity of factories.
 - (C) An increase in the size of factories.
 - (D) An increase in the cost of manufacturing industrial products.
5. Which of the following statements about manufacturing before 1870 can be inferred from the passage?
 - (A) Most manufacturing activity was highly organized.
 - (B) Most manufacturing occurred in relatively small plants.
 - (C) The most commonly manufactured goods were cotton presses.
 - (D) Manufacturing and agriculture each made up

about half of the nation's economy.

6. The word "skilled" in line 16 is closest in meaning to

- (A) hardworking
- (B) expert
- (C) well-paid
- (D) industrial

7. The word "presided over" in line 20 are closest in meaning to

- (A) managed
- (B) led to
- (C) worked in
- (D) produced

8. The author mentions the Baldwin Locomotive Works in lines 23-24 because it was

- (A) a well-known metal-works
- (B) the first plant of its kind in Philadelphia
- (C) typical of the large factories that were becoming more common
- (D) typical of factories that consisted of a single building

Question 9-19

Stars may be spheres, but not every celestial object is spherical. Objects in the universe show a variety of shapes: round planets (some with rings), tailed comets, wispy cosmic gas and dust clouds, ringed nebulae, pinwheel-shaped spiral galaxies, and so on. But none of the shapes on this list describes the largest single entities in the universe. These are the double radio sources, galaxies with huge clouds of radio emission that dwarf the visible galaxies, sometimes by a factor of a hundred or more. Stretching over distances greater than a million light-years, these radio-emitting regions resemble twin turbulent gas clouds, typically forming dumbbell-like shapes with the visible galaxy (when it is visible) in the center.

These double radio sources present astronomers with a puzzle. Their radio emission arises from the synchrotron process, in which electrons accelerated to nearly the speed of light move through magnetic fields. However, in view of the rate at which the radio sources emit energy, they should disappear in a few million years as their electrons slow down and cease producing radiation. Somehow new electrons must be continually accelerated to nearly the speed of light, otherwise, by now almost none of the double radio sources would be observed.

With the advent of high-resolution radio interferometers during the late 1970's, part of the answer became clear: the electrons are produced in jets that are shot out in opposite directions from the center of galaxy. Remarkably narrow and highly directional, the jets move outward at speeds close to the speed of light. When the jets strike the highly rarefied gas that permeates intergalactic space, the fast-moving electrons lose their highly directional motion and form vast clouds of radio-emitting gas.

Cosmic jets have ranked among the hottest topics of astronomical research in recent years as astronomers strive to understand where they come from. Why should a galaxy eject matter at such tremendous speeds in two narrow jets? And why are such jets not seen in the Milky Way?

9. The word "celestial" in line 1 could best be replaced by
- (A) visible
 - (B) astronomical
 - (C) glowing
 - (D) scientific
10. The word "entities" in line 4 is closest in meaning to
- (A) factors
 - (B) processes
 - (C) objects
 - (D) puzzles
11. In the first paragraph, the author describes objects in the universe in terms of their
- (A) color
 - (B) origin
 - (C) location
 - (D) shape
12. Which of the following is the best representation of the clouds of radio emission described in the first paragraph?
- (A) (图)
 - (B) (图)
 - (C) (图)
 - (D) (图)
13. According to the passage, scientists do not fully understand why double radio sources
- (A) have not eventually disappeared
 - (B) cannot be observed with a telescope
 - (C) are beginning to slow down
 - (D) are not as big as some planets and stars
14. The word "their" in line 22 refers to
- (A) speeds
 - (B) directions
 - (C) electrons
 - (D) clouds
15. According to the passage, what happens when electrons and gas collide in space?
- (A) The gas becomes more condensed
 - (B) The gas becomes less radiated
 - (C) The electrons disperse
 - (D) The electrons become negatively charged
16. The author suggests that astronomers consider the study of cosmic jets to be
- (A) an obsolete scientific field
 - (B) an unprofitable venture
 - (C) an intriguing challenge
 - (D) a subjective debate

17. In what lines does the passage compare the size of double radio sources with that of other galaxies?

- (A) Lines 4-6
- (B) Lines 12-14
- (C) Lines 19-20
- (D) Lines 23-24

18. Where in the passage does the author mention a technology that aided in the understanding of double radio sources?

- (A) Line 2
- (B) Line 7
- (C) Line 17
- (D) Line 21

19. The paragraph following the passage most likely discusses

- (A) specific double radio sources
- (B) an explanation of the synchrotron process
- (C) possible reasons for the presence of cosmic jets
- (D) the discovery of the first double radio sources.

Questions 20-28

The sculptural legacy that the new United States inherited from its colonial predecessors was far from a rich one, and in fact, in 1776 sculpture as an art form was still in the hands of artisans and craftspeople. Stone carvers engraved their motifs of skulls and crossbones and other religious icons of death into the gray slabs that we still see standing today in old burial grounds. Some skilled craftspeople made intricately carved wooden ornamentations for furniture or architectural decorations, while others carved wooden shop signs and ships' figureheads. Although they often achieved expression and formal excellence in their generally primitive style, they remained artisans skilled in the craft of carving and constituted a group distinct from what we normally think of as "sculptors" in today's use of the word.

On the rare occasion when a fine piece of sculpture was desired, Americans turned to foreign sculptors, as in the 1770's when the cities of New York and Charleston, South Carolina, commissioned the Englishman Joseph Wilton to make marble statues of William Pitt. Wilton also made a lead equestrian image of King George III that was created in New York in 1770 and torn down by zealous patriots six years later. A few marble memorials with carved busts, urns, or other decorations were produced in England and brought to the colonies to be set in the walls of churches-as in King's Chapel in Boston. But sculpture as a high art, practiced by artists who knew both the artistic theory of their Renaissance-Baroque-Rococo predecessors and the various technical procedures of modeling, casting, and carving rich three-dimensional forms, was not known among Americans in 1776. Indeed, for many years thereafter, the United States had two groups from which to choose - either the local craftspeople or the imported talent of European sculptors.

The eighteenth century was not one in which powerful sculptural conceptions were developed. Add to this the timidity with which unschooled artisans - originally trained as stonemasons, carpenters, or cabinetmakers - attacked the medium from which they sculpture made in the United States in the late eighteenth century.

20. What is the main idea of the passage?
- (A) There was great demand for the work of eighteenth-century artisans.
- (B) Skilled sculptors did not exist in the United States in the 1770's.
- (C) Many foreign sculptors worked in the United States after 1776.
- (D) American sculptors were hampered by a lack of tools and materials.
21. The word "motifs" in line 3 is closest in meaning to
- (A) tools
- (B) prints
- (C) signatures
- (D) designs
22. The work of which of the following could be seen in burial grounds?
- (A) European sculptors
- (B) Carpenters
- (C) Stone carvers
- (D) Cabinetmakers
23. The word "other" in line 6 refers to
- (A) craftspeople
- (B) decorations
- (C) ornamentations
- (D) shop signs
24. The word "distinct" in line 9 is closest in meaning to
- (A) separate
- (B) assembled
- (C) notable
- (D) inferior
25. The word "rare" in line 11 is closest in meaning to
- (A) festive
- (B) infrequent
- (C) delightful
- (D) unexpected
26. Why does the author mention Joseph Wilton in line 13?
- (A) He was an English sculptor who did work in the United States.
- (B) He was well known for his wood carvings
- (C) He produced sculpture for churches.
- (D) He settled in the United States in 1776.

27. What can be inferred about the importation of marble memorials from England?

- (A) Such sculpture was less expensive to produce locally than to import
- (B) Such sculpture was not available in the United States.
- (C) Such sculpture was as prestigious as those made locally.
- (D) The materials found abroad were superior.

28. How did the work of American carvers in 1776 differ from that of contemporary sculptors?

- (A) It was less time-consuming
- (B) It was more dangerous.
- (C) It was more expensive.
- (D) It was less refined.

Question 29-39

Large animals that inhabit the desert have evolved a number of adaptations for reducing the effects of extreme heat. One adaptation is to be light in color, and to reflect rather than absorb the Sun's rays. Desert mammals also depart from the normal mammalian practice of maintaining a constant body temperature. Instead of trying to keep down the body temperature deep inside the body, which would involve the expenditure of water and energy, desert mammals allow their temperatures to rise to what would normally be fever height, and temperatures as high as 46 degrees Celsius have been measured in Grant's gazelles. The overheated body then cools down during the cold desert night, and indeed the temperature may fall unusually low by dawn, as low as 34 degrees Celsius in the camel. This is an advantage since the heat of the first few hours of daylight is absorbed in warming up the body, and an excessive buildup of heat does not begin until well into the day.

Another strategy of large desert animals is to tolerate the loss of body water to a point that would be fatal for non-adapted animals. The camel can lose up to 30 percent of its body weight as water without harm to itself, whereas human beings die after losing only 12 to 13 percent of their body weight. An equally important adaptation is the ability to replenish this water loss at one drink. Desert animals can drink prodigious volumes in a short time, and camels have been known to imbibe over 100 liters in a few minutes. A very dehydrated person, on the other hand, cannot drink enough water to rehydrate at one session, because the human stomach is not sufficiently big and because a too rapid dilution of the body fluids causes death from water intoxication. The tolerance of water loss is of obvious advantage in the desert, as animals do not have to remain near a water hole but can obtain food from grazing sparse and far-flung pastures. Desert-adapted mammals have the further ability to feed normally when extremely dehydrated, it is a common experience in people that appetite is lost even under conditions of moderate thirst.

29. What is the main topic of the passage?
(A) Weather variations in the desert
(B) Adaptations of desert animals
(C) Diseases of desert animals
(D) Human use of desert animals.
30. According to the passage, why is light coloring an advantage to large desert animals?
(A) It helps them hide from predators.
(B) It does not absorb sunlight as much as dark colors.
(C) It helps them see their young at night
(D) It keeps them cool at night.
31. The word "maintaining" in line 4 is closest in meaning to
(A) measuring
(B) inheriting
(C) preserving
(D) delaying
32. The author uses of Grant's gazelle as an example of
(A) an animal with a low average temperature
(B) an animal that is not as well adapted as the camel
(C) a desert animal that can withstand high body temperatures
(D) a desert animal with a constant body temperature
33. When is the internal temperature of a large desert mammal lower?
(A) Just before sunrise
(B) In the middle of the day
(C) Just after sunset
(D) Just after drinking
34. The word "tolerate" in line 13 is closest in meaning to
(A) endure
(B) replace
(C) compensate
(D) reduce adapted mammals?
(A) They do not need to eat much food.
(B) They can eat large quantities quickly
(C) They easily lose their appetites.
(D) They can travel long distances looking for food.
35. What causes water intoxication?
(A) Drinking too much water very quickly
(B) Drinking polluted water
(C) Bacteria in water
(D) Lack of water.
36. What does the author imply about desert-

37. Why does the author mention humans in the second paragraph?
- (A) To show how they use camels.
 - (B) To contrast them to desert mammals.
 - (C) To give instructions about desert survival.
 - (D) To show how they have adapted to desert life.
38. The word "obtain" in line 23 is closest in meaning to
- (A) digest
 - (B) carry
 - (C) save
 - (D) get
39. Which of the following is NOT mentioned as an adaptation of large desert animals?
- (A) Variation in body temperatures
 - (B) Eating while dehydrated
 - (C) Drinking water quickly
 - (D) Being active at night.

Questions 40-50

Rent control is the system whereby the local government tells building owners how much they can charge their tenants in rent. In the United States, rent controls date back to at least World War II.

In 1943 the federal government imposed rent controls to help solve the problem of housing shortages during wartime. The federal program ended after the war, but in some locations, including New York City, controls continued. Under New York's controls, a landlord generally cannot raise rents on apartments as long as the tenants continue to renew their leases. In places such as Santa Monica, California, rent controls are more recent. They were spurred by the inflation of the 1970's, which, combined with California's rapid population growth, pushed housing prices, as well as rents, to record levels. In 1979 Santa Monica's municipal government ordered landlords to roll back their rents to the levels charged in 1978. Future rents could only go up by two-thirds as much as any increase in the overall price level.

In any housing market, rental prices perform three functions: (1) promoting the efficient maintenance of existing housing and stimulating the construction of new housing, (2) allocating existing scarce housing among competing claimants, and (3) rationing use of existing housing by potential renters.

One result of rent control is a decrease in the construction of new rental units. Rent controls have artificially depressed the most important long-term determinant of profitability - rents. Consider some examples. In a recent year in Dallas, Texas, with a 16 percent rental vacancy rate but no rent control laws, 11,000 new housing units were built. In the same year, in San Francisco, California, only 2,000 units were built. The major difference? San Francisco has only a 1.6 percent vacancy rate but stringent rent control laws. In New York City, except for government-subsidized construction, the only rental units being built are luxury units, which are exempt from controls. In Santa Monica, California, new apartments are not being constructed. New office rental space and commercial developments are, however. They are exempt from rent controls.

40. What does the passage mainly discuss?
(A) The construction of apartments in the United States.
(B) Causes and effects of rent control
(C) The fluctuations of rental prices
(D) The shortage of affordable housing in the United States.
41. The word "They" in line 9 refers to
(A) the tenants
(B) their leases
(C) places
(D) rent controls.
42. Which of the following was NOT a reason for the introduction of rent controls in Santa Monica, California?
(A) Rapid population growth
(B) Inflation
(C) Economic conditions during wartime
(D) Record-high housing prices
43. The phrase "roll back" in lines 11-12 is closest in meaning to
(A) credit
(B) measure
(C) vary
(D) reduce
44. The word "stimulating" in line 15 is closest in meaning to
(A) experimenting with
(B) identifying
(C) estimating
(D) encouraging
45. It can be inferred that the purpose of rent control is to
(A) protect tenants
(B) promote construction
(C) increase vacancy rates
(D) decrease sales of rental units
46. The word "depressed" in line 19 is closest in meaning to
(A) saddened
(B) created
(C) lowered
(D) defeated
47. The information in the last paragraph supports which of the following statements?
(A) San Francisco has eliminated its rent control laws.

- (B) Rent control leads to a reduction in the construction of housing units
- (C) Luxury apartments are rarely built when there is rent control
- (D) There is a growing need for government- subsidized housing.

48. According to the passage, which of the following cities does NOT currently have rent controls?

- (A) Santa Monica
- (B) Dallas
- (C) San Francisco
- (D) New York City

49. The word "stringent" in line 23 is closest in meaning to

- (A) straightforward
- (B) strict
- (C) expanded
- (D) efficient

50. According to the passage, which of the following is NOT exempt from rent control?

- (A) Luxury apartments
- (B) Commercial development
- (C) Moderately priced apartments
- (D) Office space.

TOFEL 7

Question 1-8

With Robert Laurent and William Zorach, direct carving enters into the story of modern sculpture in the United States. Direct carving - in which the sculptors themselves carve stone or wood with mallet and chisel - must be recognized as something more than just a technique. Implicit in it is an aesthetic principle as well: that the medium has certain qualities of beauty and expressiveness with which sculptors must bring their own aesthetic sensibilities into harmony. For example, sometimes the shape or veining in a piece of stone or wood suggests, perhaps even dictates, not only the ultimate form, but even the subject matter.

The technique of direct carving was a break with the nineteenth-century tradition in which the making of a clay model was considered the creative act and the work was then turned over to studio assistants to be cast in plaster or bronze or carved in marble. Neoclassical sculptors seldom held a mallet or chisel in their own hands, readily conceding that the assistants they employed were far better than they were at carving the finished marble.

With the turn-of-the-century Crafts movement and the discovery of nontraditional sources of inspiration, such as wooden African figures and masks, there arose a new urge for hands-on, personal execution of art and an interaction with the medium. Even as early as the 1880's and 1890's, nonconformist European artists were attempting direct carving. By the second decade of the twentieth century, Americans - Laurent and Zorach most notably - had adopted it as their primary means of working.

Born in France, Robert Laurent(1890-1970) was a prodigy who received his education in the United States. In 1905 he was sent to Paris as an apprentice to an art dealer, and in the years that followed he witnessed the birth of Cubism, discovered primitive art, and learned the techniques of woodcarving from a frame maker.

Back in New York City by 1910, Laurent began carving pieces such as *The Priestess*, which reveals his fascination with African, pre-Columbian, and South Pacific art. Taking a walnut plank, the sculptor carved the expressive, stylized design. It is one of the earliest examples of direct carving in American sculpture. The plank's form dictated the rigidly frontal view and the low relief. Even its irregular shape must have appealed to Laurent as a break with a long-standing tradition that required a sculptor to work within a perfect rectangle or square.

1. The word "medium" in line 5 could be

- used to refer to
- (A) stone or wood
- (B) mallet and chisel
- (C) technique
- (D) principle

2. What is one of the fundamental principles of direct carving?

- (A) A sculptor must work with talented assistants.
- (B) The subject of a sculpture should be derived from classical stories.
- (C) The material is an important element in a sculpture.
- (D) Designing a sculpture is a more creative activity than carving it.

5. The word "witnessed" in line 23 is closest in meaning to

- (A) influenced

3. The word "dictates" in line 8 is closest in meaning to

- (A) reads aloud
- (B) determines
- (C) includes
- (D) records

4. How does direct carving differ from the nineteenth-century tradition of sculpture?

- (A) Sculptors are personally involved in the carving of a piece.
- (B) Sculptors find their inspiration in neoclassical sources.
- (C) Sculptors have replaced the mallet and chisel with other tools.
- (D) Sculptors receive more formal training.
- (B) studied
- (C) validated
- (D) observed

6. Where did Robert Laurent learn to carve?

- (A) New York
- (B) Africa
- (C) The South Pacific
- (D) Paris.

7. The phrase "a break with" in line 30 is closest in meaning to

- (A) a destruction of
- (B) a departure from
- (C) a collapse of
- (D) a solution to

8. The piece titled The Priestess has all of the following characteristics EXCEPT:

- (A) The design is stylized.
- (B) It is made of marble.
- (C) The carving is not deep.
- (D) It depicts the front of a person.

Question 9-19

Birds that feed in flocks commonly retire together into roosts. The reasons for roosting communally are not always obvious, but there are some likely benefits. In winter especially, it is important for birds to keep warm at night and conserve precious food reserves. One way to do this is to find a sheltered roost. Solitary roosters shelter in dense vegetation or enter a cavity - horned larks dig holes in the ground and ptarmigan burrow into snow banks - but the effect of sheltering is magnified by several birds huddling together in the roosts, as wrens, swifts, brown creepers, bluebirds, and anis do. Body contact reduces the surface area exposed to the cold air, so the birds keep each other warm. Two kinglets huddling together were found to reduce their heat losses by a quarter and three together saved a third of their heat.

The second possible benefit of communal roosts is that they act as "information centers." During the day, parties of birds will have spread out to forage over a very large area. When they return in the evening some will have fed well, but others may have found little to eat. Some investigators have observed that when the birds set out again next morning, those birds that did not feed well on the previous day appear to follow those that did. The behavior of common and lesser kestrels may illustrate different feeding behaviors of similar birds with different roosting habits. The common kestrel hunts vertebrate animals in a small, familiar hunting ground, whereas the very similar lesser kestrel feeds on insects over a large area. The common kestrel roosts and hunts alone, but the lesser kestrel roosts and hunts in flocks, possibly so one bird can learn from others where to find insect swarms.

Finally, there is safety in numbers at communal roosts since there will always be a few birds awake at any given moment to give the alarm. But this increased protection is partially counteracted by the fact that mass roosts attract predators and are especially vulnerable if they are on the ground. Even those in trees can be attacked by birds of prey. The birds on the edge are at greatest risk since predators find it easier to catch small birds perching at the margins of the roost.

9. What does the passage mainly discuss?
- (A) How birds find and store food.
 - (B) How birds maintain body heat in the winter.
 - (C) Why birds need to establish territory.
 - (D) Why some species of birds nest together.
10. The word "conserve" in line 3 is closest in meaning to
- (A) retain
 - (B) watch
 - (C) locate
 - (D) share
11. Ptarmigan keep warm in the winter by
- (A) huddling together on the ground with other birds.
 - (B) Building nests in trees.
 - (C) Burrowing into dense patches of vegetation
 - (D) Digging tunnels into the snow.
12. The word "magnified" in line 6 is closest in meaning to
- (A) caused
 - (B) modified
 - (C) intensified
 - (D) combined
13. The author mentions kinglets in line 9 as an example of birds that
- (A) protect themselves by nesting in holes.
 - (B) Nest with other species of birds
 - (C) Nest together for warmth
 - (D) Usually feed and nest in pairs.
14. The word "forage" in line 12 is closest in meaning to
- (A) fly
 - (B) assemble
 - (C) feed
 - (D) rest
15. Which of the following statements about lesser and common kestrels is true?
- (A) The lesser kestrel and the common kestrel have similar diets.
 - (B) The lesser kestrel feeds sociably but the common kestrel does not.
 - (C) The common kestrel nests in larger flocks than does the lesser kestrel.
 - (D) The common kestrel nests in trees, the lesser kestrel nests on the ground.
16. The word "counteracted" in line 24 is closest in meaning to
- (A) suggested
 - (B) negated
 - (C) measured
 - (D) shielded
17. Which of the following is NOT mentioned in the passage as an advantage derived by birds that huddle together while sleeping?

- (A) Some members of the flock warm others of impending dangers.
- (B) Staying together provides a greater amount of heat for the whole flock.
- (C) Some birds in the flock function as information centers for others who are looking for food.
- (D) Several members of the flock care for the

young.

18. Which of the following is a disadvantage of communal roosts that is mentioned in the passage?

- (A) Diseases easily spread among the birds.
- (B) Groups are more attractive to predators than individual birds.
- (C) Food supplies are quickly depleted
- (D) Some birds in the group will attack the others.

19. The word "they" in line 25 refers to

- (A) a few birds
- (B) mass roosts
- (C) predators
- (D) trees.

Question 20-30

Before the mid-nineteenth century, people in the United States ate most foods only in season. Drying, smoking, and salting could preserve meat for a short time, but the availability of fresh meat, like that of fresh milk, was very limited; there was no way to prevent spoilage. But in 1810 a French inventor named Nicolas Appert developed the cooking-and-sealing process of canning. And in the 1850's an American named Gail Borden developed a means of condensing and preserving milk. Canned goods and condensed milk became more common during the 1860's, but supplies remained low because cans had to be made by hand. By 1880, however, inventors had fashioned stamping and soldering machines that mass-produced cans from tinplate. Suddenly all kinds of food could be preserved and bought at all times of the year.

Other trends and inventions had also helped make it possible for Americans to vary their daily diets. Growing urban populations created demand that encouraged fruit and vegetable farmers to raise more produce. Railroad refrigerator cars enabled growers and meat packers to ship perishables great distances and to preserve them for longer periods. Thus, by the 1890's, northern city dwellers could enjoy southern and western strawberries, grapes, and tomatoes, previously available for a month at most, for up to six months of the year. In addition, increased use of iceboxes enabled families to store perishables. An easy means of producing ice commercially had been invented in the 1870's, and by 1900 the nation had more than two thousand commercial ice plants, most of which made home deliveries. The icebox became a fixture in most homes and remained so until the mechanized refrigerator replaced it in the 1920's and 1930's.

Almost everyone now had a more diversified diet. Some people continued to eat mainly foods that were heavy in starches or carbohydrates, and not everyone could afford meat. Nevertheless, many families could take advantage of previously unavailable fruits, vegetables, and dairy products to achieve more varied fare.

20. What does the passage mainly discuss?
- (A) Causes of food spoilage.
(B) Commercial production of ice
(C) Inventions that led to changes in the American diet.
(D) Population movements in the nineteenth century.
21. The phrase "in season" in line 2 refers to
- (A) a kind of weather
(B) a particular time of year
(C) an official schedule
(D) a method of flavoring food.
22. The word "prevent" in line 4 is closest in meaning to
- (A) estimate
(B) avoid
(C) correct
(D) confine
23. During the 1860's, canned food products were
- (A) unavailable in rural areas
(B) shipped in refrigerator cars
(C) available in limited quantities.
(D) A staple part of the American diet.
24. It can be inferred that railroad refrigerator cars came into use
- (A) before 1860
(B) before 1890
(C) after 1900
(D) after 1920
25. The word "them" in line 14 refers to
- (A) refrigerator cars
(B) perishables
(C) growers
(D) distances
26. The word "fixture" in line 20 is closest in meaning to
- (A) luxury item
(B) substance
(C) commonplace object
(D) mechanical device
27. The author implies that in the 1920's and 1930's home deliveries of ice
- (A) decreased in number
(B) were on an irregular schedule
(C) increased in cost
(D) occurred only in the summer.
(B) because
(C) occasionally
(D) however
28. The word "Nevertheless" in line 24 is closest in meaning to
- (A) therefore

29. Which of the following types of food preservation was NOT mentioned in the passage?
- (A) Drying
 - (B) Canning
 - (C) Cold storage
 - (D) Chemical additives.
30. Which of the following statements is supported by the passage?
- (A) Tin cans and iceboxes helped to make many foods more widely available.
 - (B) Commercial ice factories were developed by railroad owners
 - (C) Most farmers in the United States raised only fruits and vegetables.
 - (D) People who lived in cities demanded home delivery of foods.

Question 31-38

The ability of falling cats to right themselves in midair and land on their feet has been a source of wonder for ages. Biologists long regarded it as an example of adaptation by natural selection, but for physicists it bordered on the miraculous. Newton's laws of motion assume that the total amount of spin of a body cannot change unless an external torque speeds it up or slows it down. If a cat has no spin when it is released and experiences no external torque, it ought not to be able to twist around as it falls.

In the speed of its execution, the righting of a tumbling cat resembles a magician's trick. The gyrations of the cat in midair are too fast for the human eye to follow, so the process is obscured. Either the eye must be speeded up, or the cat's fall slowed down for the phenomenon to be observed. A century ago the former was accomplished by means of high-speed photography using equipment now available in any pharmacy. But in the nineteenth century the capture on film of a falling cat constituted a scientific experiment.

The experiment was described in a paper presented to the Paris Academy in 1894. Two sequences of twenty photographs each, one from the side and one from behind, show a white cat in the act of righting itself. Grainy and quaint though they are, the photos show that the cat was dropped upside down, with no initial spin, and still landed on its body clockwise, the rear and tail twist counterclockwise, so that the total spin remains zero, in perfect accord with Newton's laws. Halfway down, the cat pulls in its legs before reversing its twist and then extends them again, with the desired end result. The explanation was that while nobody can acquire spin without torque, a flexible one can readily change its orientation, or phase. Cats know this instinctively, but scientists could not be sure how it happened until they increased the speed of their perceptions a thousandfold.

31. What does the passage mainly discuss?
(A) The explanation of an interesting phenomenon
(B) Miracles in modern science
(C) Procedures in scientific investigation
(D) The differences between biology and physics.
32. The word "process" in line 10 refers to
(A) the righting of a tumbling cat
(B) the cat's fall slowed down
(C) high-speed photography
(D) a scientific experiment
33. Why are the photographs mentioned in line 16 referred to as an "experiment"?
(A) The photographs were not very clear.
(B) The purpose of the photographs was to explain the process.
(C) The photographer used inferior equipment
(D) The photographer thought the cat might be injured.
34. Which of the following can be inferred about high-speed photography in the late 1800's?
(A) It was a relatively new technology.
(B) The necessary equipment was easy to obtain.
(C) The resulting photographs are difficult to interpret.
(D) It was not fast enough to provide new information.
35. The word "rotates" in line 19 is closest in meaning to
(A) drops
(B) turns
(C) controls
(D) touches
36. According to the passage, a cat is able to right itself in midair because it is
(A) frightened
(B) small
(C) intelligent
(D) flexible
37. The word "readily" in line 24 is closest in meaning to
(A) only
(B) easily
(C) slowly
(D) certainly
38. How did scientists increase "the speed of their perceptions a thousandfold" (lines 25-26)?
(A) By analyzing photographs
(B) By observing a white cat in a dark room
(C) By dropping a cat from a greater height.

(D) By studying Newton's laws of motion.

Question 39-50

The changing profile of a city in the United States is apparent in the shifting definitions used by the United States Bureau of the Census. In 1870 the census officially distinguished the nation's "urban" from its "rural" population for the first time. "Urban population" was defined as persons living in towns of 8,000 inhabitants or more. But after 1900 it meant persons living in incorporated places having 2,500 or more inhabitants.

Then, in 1950 the Census Bureau radically changed its definition of "urban" to take account of the new vagueness of city boundaries. In addition to persons living in incorporated units of 2,500 or more, the census now included those who lived in unincorporated units of that size, and also all persons living in the densely settled urban fringe, including both incorporated and unincorporated areas located around cities of 50,000 inhabitants or more. Each such unit, conceived as an integrated economic and social unit with a large population nucleus, was named a Standard Metropolitan Statistical Area (SMSA).

Each SMSA would contain at least (a) one central city with 50,000 inhabitants or more or (b) two cities having shared boundaries and constituting, for general economic and social purposes, a single community with a combined population of at least 50,000, the smaller of which must have a population of at least 15,000. Such an area included the county in which the central city is located, and adjacent counties that are found to be metropolitan in character and economically and socially integrated with the country of the central city. By 1970, about two-thirds of the population of the United States was living in these urbanized areas, and of that figure more than half were living outside the central cities.

While the Census Bureau and the United States government used the term SMSA (by 1969 there were 233 of them), social scientists were also using new terms to describe the elusive, vaguely defined areas reaching out from what used to be simple "town" and "cities". A host of terms came into use: "metropolitan regions", "polynucleated population groups", "conurbations", "metropolitan clusters", "megalopolises", and so on.

39. What does the passage mainly discuss?
- (A) How cities in the United States began and developed
 - (B) Solutions to overcrowding in cities
 - (C) The changing definition of an urban area
 - (D) How the United States Census Bureau conducts a census
40. According to the passage, the population of the United States was first classified as rural or urban in
- (A) 1870
 - (B) 1900
 - (C) 1950
 - (D) 1970
41. The word "distinguished" in line 3 is closest in meaning to
- (A) differentiated
 - (B) removed
 - (C) honored
 - (D) protected
42. Prior to 1900, how many inhabitants would a town have to have before being defines as urban?
- (A) 2,500
 - (B) 8,000
 - (C) 15,000
 - (D) 50,000
43. According to the passage, why did the Census Bureau revise the definition of urban in 1950?
- (A) City borders had become less distinct.
 - (B) Cities had undergone radical social change
 - (C) Elected officials could not agree on an acceptable definition.
 - (D) New businesses had relocated to larger cities.
44. The word "those" in line 9 refers to
- (A) boundaries
 - (B) persons
 - (C) units
 - (D) areas
45. The word "constituting" in line 16 is closest in meaning to
- (A) located near
 - (B) determine by

- (C) calling for
- (D) marking up

46. The word "which" in line 18 refers to a smaller
- (A) population
 - (B) city
 - (C) character
 - (D) figure

47. Which of the following is NOT true of an SMSA?

- (A) It has a population of at least 50,000
- (B) It can include a city's outlying regions
- (C) It can include unincorporated regions
- (D) It consists of at least two cities.

48. By 1970, what proportion of the population in the United States did NOT live in an SMSA?

- (A) $\frac{3}{4}$
- (B) $\frac{2}{3}$
- (C) $\frac{1}{2}$
- (D) $\frac{1}{3}$

49. The Census Bureau first used the term "SMSA" in

- (A) 1900
- (B) 1950
- (C) 1969
- (D) 1970

50. Where in the passage does the author mention names used by social scientists for an urban area?

- (A) Lines 4-5
- (B) Lines 7-8
- (C) Lines 21-23
- (D) Lines 27-29.

TOFEL 8

Question 1-9

In the 1600's when the Spanish moved into what later was to become the southwestern United States, they encountered the ancestors of the modern-day Pueblo, Hopi, and Zuni peoples. These ancestors, known variously as the Basket Makers, the Anasazi, or the Ancient Ones, had lived in the area for at least 2,000 years. They were an advanced agricultural people who used irrigation to help grow their crops.

The Anasazi lived in houses constructed of adobe and wood. Anasazi houses were originally built in pits and were entered from the roof. But around the year 700 A.D., the Anasazi began to build their homes above ground and join them together into rambling multistoried complexes, which the Spanish called pueblos or villages. Separate subterranean rooms in these pueblos _____ known as kivas or chapels _____ were set aside for religious ceremonials. Each kiva had a fire pit and a hole that was believed to lead to the underworld. The largest pueblos had five stories and more than 800 rooms.

The Anasazi family was matrilinear, that is, descent was traced through the female. The sacred objects of the family were under the control of the oldest female, but the ritual ceremonies were conducted by her brother or son. Women owned the rooms in the pueblo and the crops, once they were harvested. While still growing, crops belonged to the man who, in contrast to most other Native American groups, planted them. The women made baskets and pottery, the men wove textile and crafted turquoise jewelry.

Each village had two chiefs. The village chief dealt with land disputes and religious affairs. The war chief led the men in fighting during occasional conflicts that broke out with neighboring villages and directed the men in community building projects. The cohesive political and social organization of the Anasazi made it almost impossible for other groups to conquer them.

1. The Anasazi people were considered "agriculturally advanced" because of the way they
 - (A) stored their crops
 - (B) fertilized their fields.
 - (C) watered their crops.
 - (D) planted their fields.
2. The word "pits" in line 7 is closest in meaning to
 - (A) stages
 - (B) scars
 - (C) seeds
 - (D) holes.
3. The word "stories" in line 12 is closest in meaning to
 - (A) articles
 - (B) tales
 - (C) levels
 - (D) rumors
4. Who would have been most likely to control the sacred objects of an Anasazi family?
 - (A) A twenty-year-old man
 - (B) A twenty-year-old woman
 - (C) A forty-year-old man
 - (D) A forty-year-old woman
5. The word "they" in line 16 refers to
 - (A) women
 - (B) crops
 - (C) rooms
 - (D) pueblos
6. The word "disputes" in line 20 is closest in meaning to
 - (A) discussions
 - (B) arguments
 - (C) developments
 - (D) purchases
7. Which of the following activities was NOT done by Anasazi men?
 - (A) Making baskets
 - (B) Planting crops
 - (C) Building homes
 - (D) Crafting jewelry.
8. According to the passage, what made it almost impossible for other groups to conquer the Anasazi?
 - (A) The political and social organization of the Anasazi

- (B) The military tactics employed by the Anasazi
- (C) The Anasazi's agricultural technology.

(D) The natural barriers surrounding Anasazi willages.

9. The passage supports which of the following generalizations?

- (A) The presence of the Spanish threatened Anasazi society.
- (B) The Anasazi benefited from trading relations with the Spanish.
- (C) Anasazi society exhibited a well-defined division of labor.
- (D) Conflicts between neighboring Anasazi villages were easily resolved.

Question 10-19

Barbed wire, first patented in the United States in 1867, played an important part in the development of American farming, as it enabled the settlers to make effective fencing to enclose their land and keep cattle away from their crops. This had a considerable effect on cattle ranching, since the herds no longer had unrestricted use of the plans for grazing, and the fencing led to conflict between the farmers and the cattle ranchers.

Before barbed wire came into general use, fencing was often made from serrated wire, which was unsatisfactory because it broke easily when under strain, and could snap in cold weather due to contraction. The first practical machine for producing barbed wire was invented in 1874 by an Illinois farmer, and between then and the end of the century about 400 types of barbed wire were devised, of which only about a dozen were ever put to practical use.

Modern barbed wire is made from mild steel high-tensile steel, or aluminum. Mild steel and aluminum barbed wire have two strands twisted together to form a cable which is stronger than single-strand wire and less affected by temperature changes. Single-strand wire, round or oval, is made from high-tensile steel with the barbs crimped or welded on. The steel wires used are galvanized - coated with zinc to make them rustproof. The two wires that make up the line wire or cable are fed separately into a machine at one end. They leave it at the other end twisted-together and barbed. The wire to make the barbs is fed into the machine from the sides and cut to length by knives that cut diagonally through the wire to produce a sharp point. This process continues automatically, and the finished barbed wire is wound onto reels, usually made of wire in length of 400 meters or in weights of up to 50 kilograms.

A variation of barbed wire is also used for military purposes. It is formed into long cojis or entanglements called concertina wire.

10. What is the main topic of the passage?
- (A) Cattle ranching in the United States.
(B) A type of fencing
(C) Industrial uses of wire
(D) A controversy over land use.
11. The word "unrestricted" in line 4 is closest in meaning to
- (A) unsatisfactory
(B) difficult
(C) considerable
(D) unlimited
12. The word "snap" in line 9 could best be replaced by which of the following?
- (A) freeze
(B) click
(C) loosen
(D) break
13. What is the benefit of using two-stranded barbed wire?
- (A) Improved rust-resistance
(B) Increased strength
(C) More rapid attachment of barbs
(D) Easier installation.
14. According to the author, the steel wires used to make barbed wire are specially processed to
- (A) protect them against rust
(B) make them more flexible
(C) prevent contraction in cold weather
(D) straighten them.
15. The word "fed" in line 20 is closest in meaning to
- (A) put
(B) eaten
(C) bitten
(D) nourished
16. The knives referred to in line 21 are used to
- (A) separate double-stranded wire
(B) prevent the reel from advancing too rapidly
(C) twist the wire
(D) cut the wire that becomes barbs
17. What is the author's purpose in the third paragraph?
- (A) To explain the importance of the wire.
(B) To outline the difficulty of making the wire
(C) To describe how the wire is made
(D) To suggest several different uses of the wire.
18. According to the passage, concertina wire is used for
- (A) livestock management
(B) international communications
(C) prison enclosures
(D) military purposes.

19. Which of the following most closely resembles the fencing described in the passage?

- (A) (图)
- (B) (图)
- (C) (图)
- (D) (图)

Question 20-28

Under certain circumstances the human body must cope with gases at greater-than-normal atmospheric pressure. For example, gas pressures increase rapidly during a dive made with scuba gear because the breathing equipment allows divers to stay underwater longer and dive deeper. The pressure exerted on the human body increases by 1 atmosphere for every 10 meters of depth in seawater, so that at 30 meters in seawater a diver is exposed to a pressure of about 4 atmospheres. The pressure of the gases being breathed must equal the external pressure applied to the body; otherwise breathing is very difficult. Therefore all of the gases in the air breathed by a scuba diver at 40 meters are present at five times their usual pressure. Nitrogen which composes 80 percent of the air we breathe usually causes a balmy feeling of well-being at this pressure. At a depth of 5 atmospheres nitrogen causes symptoms resembling alcohol intoxication known as nitrogen narcosis. Nitrogen narcosis apparently results from a direct effect on the brain of the large amounts of nitrogen dissolved in the blood. Deep dives are less dangerous if helium is substituted for nitrogen, because under these pressures helium does not exert a similar narcotic effect.

As a scuba diver descends, the pressure of nitrogen in the lungs increases. Nitrogen then diffuses from the lungs to the blood and from the blood to body tissues. The reverse occurs when the diver surfaces; the nitrogen pressure in the lungs falls and the nitrogen diffuses from the tissues into the blood and from the blood into the lungs. If the return to the surface is too rapid, nitrogen in the tissues and blood cannot diffuse out rapidly enough and nitrogen bubbles are formed. They can cause severe pains, particularly around the joints.

Another complication may result if the breath is held during ascent. During ascent from a depth of 10 meters, the volume of air in the lungs will double because the air pressure at the surface is only half of what it was at 10 meters. This change in volume may cause the lungs to distend and even rupture. This condition is called air embolism. To avoid this event, a diver must ascent slowly, never at a rate exceeding the rise of the exhaled air bubbles, and must exhale during ascent.

20. What does the passage mainly discuss?
(A) The equipment divers use
(B) The effects of pressure on gases in the human body
(C) How to prepare for a deep dive
(D) The symptoms of nitrogen bubbles in the bloodstream.
21. The word "exposed to" in line 6 are closest in meaning to
(A) leaving behind
(B) prepared for
(C) propelled by
(D) subjected to
22. The word "exert" in line 15 is closest in meaning to
(A) cause
(B) permit
(C) need
(D) change
23. The word "diffuses" in line 19 is closest in meaning to
(A) yields
(B) starts
(C) surfaces
(D) travels
24. What happens to nitrogen in body tissues if a diver ascends too quickly.
(A) It forms bubbles
(B) It goes directly to the brain
(C) It is reabsorbed by the lungs.
(D) It has a narcotic effect.
25. The word "They" in line 21 refers to
(A) joints
(B) pains
(C) bubbles
(D) tissues.
26. The word "rupture" in line 26 is closest in meaning to
(A) hurt
(B) shrink
(C) burst
(D) stop
27. It can be inferred from the passage that which of the following presents the greatest danger to a diver?
(A) Pressurized helium
(B) Nitrogen diffusion
(C) Nitrogen bubbles
(D) An air embolism

28. What should a diver do when ascending?

- (A) Rise slowly
- (B) Breathe faster
- (C) Relax completely
- (D) Breathe helium.

Question 29-38

Each advance in microscopic technique has provided scientists with new perspectives on the function of living organisms and the nature of matter itself. The invention of the visible-light microscope late in the sixteenth century introduced a previously unknown realm of single-celled plants and animals. In the twentieth century, electron microscopes have provided direct views of viruses and minuscule surface structures. Now another type of microscope, one that utilize x-rays rather than light or electrons, offers a different way of examining tiny details, it should extend human perception still farther into the natural world.

The dream of building an x-ray microscope dates to 1895, its development, however, was virtually halted in the 1940's because the development of the electron microscope was progressing rapidly. During the 1940's electron microscopes routinely achieved resolution better than that possible with a visible-light microscope, while the performance of x-ray microscopes resisted improvement. In recent years, however, interest in x-ray microscopes has revived, largely because of advances such as the development of new sources of x-ray illumination. As a result, the brightness available today is millions of times that of x-ray tubes, which, for most of the century, were the only available sources of soft x-rays.

The new x-ray microscopes considerably improve on the resolution provided by optical microscopes. They can also be used to map the distribution of certain chemical elements. Some can form pictures in extremely short times, others hold the promise of special capabilities such as three dimensional imaging. Unlike conventional electron microscopy, x-ray microscopy enables specimens to be kept in air and in water, which means that biological samples can be studied under conditions similar to their natural state. The illumination used, so-called soft x-rays in the wavelength range of twenty to forty angstroms (an angstrom is one ten-billionth of a meter), is also sufficiently penetrating to image intact biological cells in many cases. Because of the wavelength of the x-rays used, soft x-ray microscopes will never match the highest resolution possible with electron microscopes. Rather, their special properties will make possible investigations that will complement those performed with light- and electron-based instruments.

29. What does the passage mainly discuss?
(A) The detail seen through a microscope
(B) Sources of illumination for microscopes
(C) A new kind of microscope
(D) Outdated microscopic technique
30. According to the passage, the invention of the visible-light microscope allowed scientists to
(A) see viruses directly
(B) develop the electron microscope later on
(C) understand more about the distribution of the chemical elements
(D) discover single celled plants and animals they had never seen before.
31. The word "minuscule" in line 5 is closest in meaning to
(A) circular
(B) dangerous
(C) complex
(D) tiny
32. The word "it" in line 7 refers to
(A) a type of microscope
(B) human perception
(C) the natural world
(D) light
33. Why does the author mention the visible light microscope in the first paragraph?
(A) To begin a discussion of sixteenth century discoveries.
(B) To put the x-ray microscope in historical perspective
(C) To show how limited its uses are
(D) To explain how it functioned
34. Why did it take so long to develop the x-ray microscope?
(A) Funds for research were insufficient.
(B) The source of illumination was not bright enough until recently.
(C) Materials used to manufacture x-ray tubes were difficult to obtain
(D) X-ray microscopes were too complicated to operate.
(B) specifies
(C) expands
(D) allows
35. The word "enables" in line 32 is closest in meaning to
(A) constitutes
36. The word "Rather" in line 28 is closest in

- meaning to
- (A) significantly
 - (B) preferably
 - (C) somewhat
 - (D) instead

37. The word "those" in line 29 refers to

- (A) properties
- (B) investigations
- (C) microscopes
- (D) x-rays

38. Based on the information in the passage, what can be inferred about x-ray microscopes in the future?

- (A) They will probably replace electron microscopes altogether.
- (B) They will eventually be much cheaper to produce than they are now.
- (C) They will provide information not available from other kinds of microscopes.
- (D) They will eventually change the illumination range that they now use.

Question 39-50

Perhaps the most striking quality of satiric literature is its freshness, its originality of perspective. Satire rarely offers original ideas. Instead it presents the familiar in a new form. Satirists do not offer the world new philosophies. What they do is look at familiar conditions from a perspective that makes these conditions seem foolish, harmful or affected. Satire jars us out of complacency into a pleasantly shocked realization that many of the values we unquestioningly accept are false. Don Quixote makes chivalry seem absurd, Brave New World ridicules the pretensions of science, A Modest proposal dramatizes starvation by advocating cannibalism. None of these ideas is original. Chivalry was suspect before Cervantes, humanists objected to the claims of pure science before Aldous Huxley and people were aware of famine before Swift. It was not the originality of the idea that made these satires popular. It was the manner of expression the satiric method that made them interesting and entertaining. Satires are read because they are aesthetically satisfying works of art, not because they are morally wholesome or ethically instructive. They are stimulating and refreshing because with commonsense briskness they brush away illusions and secondhand opinions. With spontaneous irreverence, satire rearranges perspectives, scrambles familiar objects into incongruous juxtaposition and speaks in a personal idiom instead of abstract platitude.

Satire exists because there is need for it. It has lived because readers appreciate a refreshing stimulus, an irreverent reminder that they lived in a world of platitudinous thinking, cheap moralizing, and foolish philosophy. Satire serves to prod people into an awareness of truth though rarely to any action on behalf of truth. Satire tends to remind people that much of what they see, hear, and read in popular media is sanctimonious, sentimental, and only partially true. Life resembles in only a slight degree the popular image of it. Soldiers rarely hold the ideals that movies attribute to them, nor do ordinary citizens devote their lives to unselfish service of humanity. Intelligent people know these things but tend to forget them when they do not hear them expressed.

39. What does the passage mainly discuss?
(A) Difficulties of writing satiric literature.
(B) Popular topics of satire
(C) New philosophies emerging from satiric literature
(D) Reasons for the popularity of satire.
40. The word "realization" in line 6 is closest in meaning to
(A) certainly
(B) awareness
(C) surprise
(D) confusion
41. Why does the author mention Don Quixote, Brave New World and A Modest Proposal in lines 6-8?
(A) They are famous examples of satiric literature
(B) They present commonsense solutions to problems.
(C) They are appropriate for readers of all ages.
(D) They are books with similar stories.
42. The word "aesthetically" in line 13 is closest in meaning to
(A) artistically
(B) exceptionally
(C) realistically
(D) dependably
43. Which of the following can be found in satire literature?
(A) Newly emerging philosophies
(B) Odd combinations of objects and ideas
(C) Abstract discussion of moral and ethnics
(D) Wholesome characters who are unselfish.
44. According to the passage, there is a need for satire because people need to be
(A) informed about new scientific developments
(B) exposed to original philosophies when they are formulated
(C) reminded that popular ideas are often inaccurate
(D) told how they can be of service to their communities.
45. The word "refreshing" in line 19 is closest in meaning to
(A) popular
(B) ridiculous
(C) meaningful
(D) unusual
46. The word "they" in line 22 refers to
(A) people
(B) media
(C) ideals

(D) movies

47. The word "devote" in line 25 is closest in meaning to

- (A) distinguish
- (B) feel affection
- (C) prefer
- (D) dedicate

48. As a result of reading satiric literature, readers will be most likely to

- (A) teach themselves to write fiction
- (B) accept conventional points of view
- (C) become better informed about current affairs
- (D) reexamine their opinions and values

49. The various purposes of satire include all of the following EXCEPT

- (A) introducing readers to unfamiliar situations
- (B) brushing away illusions
- (C) reminding readers of the truth
- (D) exposing false values.

50. Why does the author mention "service of humanity" in line 25?

- (A) People need to be reminded to take action
- (B) Readers appreciate knowing about it
- (C) It is an ideal that is rarely achieved.
- (D) Popular media often distort such stories.

TOFEL 9

Question 1-7

Hotels were among the earliest facilities that bound the United States together. They were both creatures and creators of communities, as well as symptoms of the frenetic quest for community. Even in the first part of the nineteenth century, Americans were private, business and pleasure purposes. Conventions were the new occasions, and hotels were distinctively American facilities making conventions possible. The first national convention of a major party to choose a candidate for President (that of the National Republican party, which met on December 12, 1831, and nominated Henry Clay for President) was held in Baltimore, at a hotel that was then reputed to be the best in the country. The presence in Baltimore of Barnum's City Hotel, a six-story building with two hundred apartments helps explain why many other early national political conventions were held there.

In the longer run, too. American hotels made other national conventions not only possible but pleasant and convivial. The growing custom of regularly assembling from afar the representatives of all kinds of groups - not only for political conventions, but also for commercial, professional, learned, and avocational ones - in turn supported the multiplying hotels. By mid-twentieth century, conventions accounted for over third of the yearly room occupancy of all hotels in the nation, about eighteen thousand different conventions were held annually with a total attendance of about ten million persons.

Nineteenth-century American hotelkeepers, who were no longer the genial, deferential "hosts" of the eighteenth-century European inn, became leading citizens. Holding a large stake in the community, they exercised power to make it prosper. As owners or managers of the local "palace of the public", they were makers and shapers of a principal community attraction. Travelers from abroad were mildly shocked by this high social position.

1. The word "bound" in line 1 is closest in meaning to
(A) led
(B) protected
(C) tied
(D) strengthened
2. The National Republican party is mentioned in line 8 as an example of a group
(A) from Baltimore
(B) of learned people
(C) owning a hotel
(D) holding a convention
3. The word "assembling" in line 14 is closest in meaning to
(A) announcing
(B) motivating
(C) gathering
(D) contracting
4. The word "ones" in line 16 refers to
(A) hotels
(B) conventions
(C) kinds
(D) representatives
5. The word "it" in line 23 refers to
(A) European inn
(B) host
(C) community
(D) public
6. It can be inferred from the passage that early hotelkeepers in the United States were
(A) active politicians
(B) European immigrants
(C) Professional builders
(D) Influential citizens
7. Which of the following statements about early American hotels is NOT mentioned in the passage?
(A) Travelers from abroad did not enjoy staying in them.
(B) Conventions were held in them
(C) People used them for both business and pleasure.
(D) They were important to the community.

Question 8-17

Beads were probably the first durable ornaments humans possessed, and the intimate relationship they had with their owners is reflected in the fact that beads are among the most common items found in ancient archaeological sites. In the past, as today, men, women, and children adorned themselves with beads. In some cultures still, certain beads are often worn from birth until death, and then are buried with their owners for the afterlife. Abrasion due to daily wear alters the surface features of beads, and if they are buried for long, the effects of corrosion can further change their appearance. Thus, interest is imparted to the bead both by use and the effects of time.

Besides their wearability, either as jewelry or incorporated into articles of attire, beads possess the desirable characteristics of every collectible, they are durable, portable, available in infinite variety, and often valuable in their original cultural context as well as in today's market. Pleasing to look at and touch, beads come in shapes, colors, and materials that almost compel one to handle them and to sort them.

Beads are miniature bundles of secrets waiting to be revealed: their history, manufacture, cultural context, economic role, and ornamental use are all points of information one hopes to unravel. Even the most mundane beads may have traveled great distances and been exposed to many human experiences. The bead researcher must gather information from many diverse fields. In addition to having to be a generalist while specializing in what may seem to be a narrow field, the researcher is faced with the problem of primary materials that have little or no documentation. Many ancient beads that are of ethnographic interest have often been separated from their original cultural context.

The special attractions of beads contribute to the uniqueness of bead research. While often regarded as the "small change of civilizations", beads are a part of every culture, and they can often be used to date archaeological sites and to designate the degree of mercantile, technological, and cultural sophistication.

8. What is the main subject of the passage?
(A) Materials used in making beads.
(B) How beads are made
(C) The reasons for studying beads
(D) Different types of beads
9. The word "adorned" in line 4 is closest in meaning to
(A) protected
(B) decorated
(C) purchased
(D) enjoyed
10. The word "attire" in line 9 is closest in meaning to
(A) ritual
(B) importance
(C) clothing
(D) history
11. All of the following are given as characteristics of collectible objects EXCEPT
(A) durability
(B) portability
(C) value
(D) scarcity.
12. According to the passage, all of the following are factors that make people want to touch beads EXCEPT the
(A) shape
(B) color
(C) material
(D) odor
13. The word "unravel" in line 16 is closest in meaning to
(A) communicate
(B) transport
(C) improve
(D) discover
14. The word "mundane" in line 16 is closest in meaning to
(A) carved
(B) beautiful
(C) ordinary
(D) heavy
15. It is difficult to trace the history of certain ancient beads because they
(A) are small in size
(B) have been buried underground
(C) have been moved from their original locations
(D) are frequently lost
which of the following?
(A) Anthropologists
(B) Agricultural experts
(C) Medical researchers
16. Knowledge of the history of some beads may be useful in the studies done by

(D) Economists

17. Where in the passage does the author describe why the appearance of beads may change?

- (A) Lines 3-4
- (B) Lines 6-8
- (C) Lines 12-13
- (D) Lines 20-22.

Question 18-31

In the world of birds, bill design is a prime example of evolutionary fine-tuning. Shorebirds such as oystercatchers use their bills to pry open the tightly sealed shells of their prey, hummingbirds have stiletto-like bills to probe the deepest nectar-bearing flowers, and kiwis smell out earthworms thanks to nostrils located at the tip of their beaks. But few birds are more intimately tied to their source of sustenance than are crossbills. Two species of these finches, named for the way the upper and lower parts of their bills cross, rather than meet in the middle, reside in the evergreen forests of North America and feed on the seeds held within the cones of coniferous trees.

The efficiency of the bill is evident when a crossbill locates a cone. Using a lateral motion of its lower mandible, the bird separates two overlapping scales on the cone and exposes the seed. The crossed mandibles enable the bird to exert a powerful biting force at the bill tips, which is critical for maneuvering them between the scales and spreading the scales apart. Next, the crossbill snakes its long tongue into the gap and draws out the seed. Using the combined action of the bill and tongue, the bird cracks open and discards the woody seed covering action and swallows the nutritious inner kernel. This whole process takes but a few seconds and is repeated hundreds of times a day.

The bills of different crossbill species and subspecies vary - some are stout and deep, others more slender and shallow. As a rule, large-billed crossbills are better at securing seeds from large cones, while small-billed crossbills are more deft at removing the seeds from small, thin-scaled cones. Moreover, the degree to which cones are naturally slightly open or tightly closed helps determine which bill design is the best.

One anomaly is the subspecies of red crossbill known as the Newfoundland crossbill. This bird has a large, robust bill, yet most of Newfoundland's conifers have small cones, the same kind of cones that the slender-billed white-wings rely on.

18. What does the passage mainly discuss?
(A) The importance of conifers in evergreen forests
(B) The efficiency of the bill of the crossbill
(C) The variety of food available in a forest
(D) The different techniques birds use to obtain food
19. Which of the following statements best represents the type of "evolutionary fine - turning" mentioned in line 1?
(A) Different shapes of bills have evolved depending on the available food supply
(B) White - wing crossbills have evolved from red crossbills
(C) Newfoundland's conifers have evolved small cones
(D) Several subspecies of crossbills have evolved from two species
20. Why does the author mention oystercatchers, hummingbirds, and kiwis in lines 2-4?
(A) They are examples of birds that live in the forest
(B) Their beaks are similar to the beak of the crossbill
(C) They illustrate the relationship between bill design and food supply
(D) They are closely related to the crossbill
21. Crossbills are a type of
(A) shorebird
(B) hummingbird
(C) kiwi
(D) finch
22. Which of the following most closely resembles the bird described in lines 6-8?
(A) (图)
(B) (图)
(C) (图)
(D) (图)
23. The word "which" in line 12 refers to
(A) seed
(B) bird
(C) force
(D) bill
24. The word "gap" in line 13 is closest in meaning to
(A) opening
(B) flower
(C) mouth
(D) tree
25. The word "discards" in line 15 is closest in

- meaning to
- (A) eats
 - (B) breaks
 - (C) finds out
 - (D) gets rid of

26. The word "others" in line 18 refers to
- (A) bills
 - (B) species
 - (C) seeds
 - (D) cones

27. The word "deft" in line 19 is closest in meaning to
- (A) hungry
 - (B) skilled
 - (C) tired
 - (D) pleasant

28. The word "robust" in line 24 is closest in meaning to
- (A) strong
 - (B) colorful
 - (C) unusual
 - (D) sharp

29. In what way is the Newfoundland crossbill an anomaly?
- (A) It is larger than the other crossbill species
 - (B) It uses a different technique to obtain food
 - (C) The size of its bill does not fit the size of its food source
 - (D) It does not live in evergreen forests.

30. The final paragraph of the passage will probably continue with a discussion of
- (A) other species of forest birds
 - (B) the fragile ecosystem of Newfoundland
 - (C) what mammals live in the forests of North America
 - (D) how the Newfoundland crossbill survives with a large bill

31. Where in the passage does the author describe how a crossbill removes a seed from its cone?
- (A) The first paragraph
 - (B) The second paragraph
 - (C) The third paragraph
 - (D) The fourth paragraph

Question 32-38

If you look closely at some of the early copies of the Declaration of Independence, beyond the flourished signature of John Hancock and the other 55 men who signed it, you will also find the name of one woman, Mary Katherine Goddard. It was she, a Baltimore printer, who published the first official copies of the Declaration, the first copies that included the names of its signers and therefore heralded the support of all thirteen colonies.

Mary Goddard first got into printing at the age of twenty-four when her brother opened a printing shop in Providence, Rhode Island, in 1762. When he proceeded to get into trouble with his partners and creditors, it was Mary Goddard and her mother who were left to run the shop. In 1765 they began publishing the Providence Gazette, a weekly newspaper. Similar problems seemed to follow her brother as he opened businesses in Philadelphia and again in Baltimore. Each time Ms. Goddard was brought in to run the newspapers. After starting Baltimore's first newspaper, *The Maryland Journal*, in 1773, her brother went broke trying to organize a colonial postal service. While he was in debtor's prison. Mary Katherine Goddard's name appeared on the newspaper's masthead for the first time.

When the Continental Congress fled there from Philadelphia in 1776, it commissioned Ms. Goddard to print the first official version of the Declaration of Independence in January 1777. After printing the documents, she herself paid the post riders to deliver the Declaration throughout the colonies.

During the American Revolution, Mary Goddard continued to publish Baltimore's only newspaper, which one historian claimed was "second to none among the colonies". She was also the city's postmaster from 1775 to 1789 - appointed by Benjamin Franklin - and is considered to be the first woman to hold a federal position.

32. With which of the following subjects is the passage mainly concerned?
- (A) The accomplishments of a female publisher
 - (B) The weakness of the newspaper industry
 - (C) The rights of a female publisher
 - (D) The publishing system in colonial America
33. Mary Goddard's name appears on the Declaration of Independence because
- (A) she helped write the original document
 - (B) she published the document
 - (C) she paid to have the document printed
 - (D) her brother was in prison
34. The word "heralded" in line 5 is closest in meaning to
- (A) influenced
 - (B) announced
 - (C) rejected
 - (D) ignored
35. According to the passage, Mary Goddard first became involved in publishing when she
- (A) was appointed by Benjamin Franklin
 - (B) signed the Declaration of Independence.
 - (C) took over her brother's printing shop
 - (D) moved to Baltimore
36. The word "there" in line 17 refers to
- (A) the colonies
 - (B) the print shop
 - (C) Baltimore
 - (D) Providence
37. It can be inferred from the passage that Mary Goddard was
- (A) an accomplished businesswoman
 - (B) extremely wealthy
 - (C) a member of the Continental Congress
 - (D) a famous writer
38. The word "position" in line 24 is closest in meaning to
- (A) job
 - (B) election
 - (C) document
 - (D) location

Question 39-50

Galaxies are the major building blocks of the universe. A galaxy is giant family of many millions of stars, and it is held together by its own gravitational field. Most of the material universe is organized into galaxies of stars together with gas and dust.

There are three main types of galaxy: spiral, elliptical, and irregular. The Milky Way is a spiral galaxy, a flattish disc of stars with two spiral arms emerging from its central nucleus. About one-quarter of all galaxies have this shape. Spiral galaxies are well supplied with the interstellar gas in which new stars form: as the rotating spiral pattern sweeps around the galaxy it compresses gas and dust, triggering the formation of bright young stars and in its arms. The elliptical galaxies have a symmetrical elliptical or spheroidal shape with no obvious structure. Most of their member stars are very old and since ellipticals are devoid of interstellar gas, no new stars are forming in them. The biggest and brightest galaxies in the universe are ellipticals with masses of about 1013 times that of the Sun, these giants may frequently be sources of strong radio emission, in which case they are called radio galaxies. About two-thirds of all galaxies are elliptical. Irregular galaxies comprise about one-tenth of all galaxies and they come in many subclasses.

Measurement in space is quite different from measurement on Earth. Some terrestrial distances can be expressed as intervals of time, the time to fly from one continent to another or the time it takes to drive to work, for example. By comparison with these familiar yardsticks, the distances to the galaxies are incomprehensibly large, but they too are made more manageable by using a time calibration, in this case the distance that light travels in one year. On such a scale the nearest giant spiral galaxy, the Andromeda galaxy, is two million light years away. The most distant luminous objects seen by telescopes are probably ten thousand million light years away. Their light was already halfway here before the Earth even formed. The light from the nearby Virgo galaxy set out when reptiles still dominated the animal world.

39. The word "major" in line 1 is closest in meaning to
- (A) intense
 - (B) principal
 - (C) huge
 - (D) unique
40. What does the second paragraph mainly discuss?
- (A) The Milky Way
 - (B) Major categories of galaxies
 - (C) How elliptical galaxies are formed
 - (D) Differences between irregular and spiral galaxies
41. The word "which" in line 7 refers to
- (A) dust
 - (B) gas
 - (C) pattern
 - (D) galaxy
42. According to the passage, new stars are formed in spiral galaxies due to
- (A) an explosion of gas
 - (B) the compression of gas and dust
 - (C) the combining of old stars
 - (D) strong radio emissions
43. The word "symmetrical" in line 9 is closest in meaning to
- (A) proportionally balanced
 - (B) commonly seen
 - (C) typically large
 - (D) steadily growing
44. The word "obvious" in line 10 is closest in meaning to
- (A) discovered
 - (B) apparent
 - (C) understood
 - (D) simplistic
45. According to the passage, which of the following is NOT true of elliptical galaxies?
- (A) They are the largest galaxies.
 - (B) They mostly contain old stars.
 - (C) They contain a high amount of interstellar gas.
 - (D) They have a spherical shape.
46. Which of the following characteristics of radio galaxies is mentioned in the passage?
- (A) They are a type of elliptical galaxy.
 - (B) They are usually too small to be seen with a telescope.
 - (C) They are closely related to irregular galaxies.
 - (D) They are not as bright as spiral galaxies.

47. What percentage of galaxies are irregular?

- (A) 10%
- (B) 25%
- (C) 50%
- (D) 75%

48. The word "they" in line 21 refers to

- (A) intervals
- (B) yardsticks
- (C) distances
- (D) galaxies

49. Why does the author mention the Virgo galaxy and the Andromeda galaxy in the third paragraph?

- (A) To describe the effect that distance has on visibility.
- (B) To compare the ages of two relatively young galaxies.
- (C) To emphasize the vast distances of the galaxies from Earth.
- (D) To explain why certain galaxies cannot be seen by a telescope.

50. The word "dominated" in line 26 is closest in meaning to

- (A) threatened
- (B) replaced
- (C) were developing in
- (D) were prevalent in

TOEFL 10

Question 1-9

Although social changes in the United States were being wrought throughout most of the nineteenth-century, public awareness of the changes increased to new levels in the 1890's. The acute, growing public awareness of the social changes that had been taking place for some time was tied to tremendous growth in popular journalism in the late nineteenth century, including growth in quantity and circulation of both magazines and newspapers. These developments, in addition to the continued growth of cities, were significant factors in the transformation of society from one characterized by relatively isolated self-contained communities into an urban, industrial nation. The decade of the 1870's, for *example*, was a period in which the sheer number of newspapers doubled, and by 1880 the *New York Graphic* had published the first photographic reproduction in a newspaper, portending a dramatic rise in newspaper readership. Between 1882 and 1886 alone, the price of daily newspapers dropped from four cents a copy to one cent, made possible in part by a great increase in demand. Further more, the introduction in 1890 of the first successful linotype machine promised even further growth. In 1872 only two daily newspapers could claim a circulation of over 100,000, but by 1892 seven more newspapers exceeded that figure. A world beyond the immediate community was rapidly becoming visible. But it was not newspapers alone that were bringing the new awareness to people in the United States in the late nineteenth century. Magazines as they are known today began publication around 1882, and, in fact, the circulation of weekly magazines exceeded that of newspapers in the period which followed. By 1892, for example, the circulation of the *Ladies' Home Journal* had reached an astounding 700,000. An increase in book readership also played a significant part in this general trend. For example, Edward Bellamy's utopian novel, *Looking Backward*, sold over a million copies in 1888, giving rise to the growth of organizations dedicated to the realization of Bellamy's vision of the future. The printed word, unquestionably, was intruding on the insulation that had characterized United States society in an earlier period.

1. The word "acute" in line 3 is closest in meaning to
 - (A) useful
 - (B) intense
 - (C) genuine
 - (D) controversial
2. According to the passage, the expansion of popular journalism was linked to
 - (A) changes in the distribution system
 - (B) a larger supply of paper
 - (C) an increase in people's awareness of social changes
 - (D) greater numbers of journalists
3. According to the passage, the *New York Graphic's* inclusion of photographs contributed to
 - (A) the closing of newspapers that did not use photographs
 - (B) newspapers becoming more expensive
 - (C) an increase in the number of people reading newspapers
 - (D) a reduction in the cost of advertising
4. Why was there a drop in the price of daily newspapers between 1882 and 1886?
 - (A) There was a rise in demand.
 - (B) Newspapers had fewer pages.
 - (C) Newspapers contained photographic reproductions.
 - (D) Magazines began to compete with newspapers.
5. The word "exceeded" in line 16 is closest in meaning to
 - (A) controlled
 - (B) surpassed
 - (C) affected
 - (D) equaled

6. What does the author mean by the statement " A world beyond the immediate community was rapidly becoming visible" in lines 16-11 ?
- (A) Photographs made newspapers more interesting.
 - (B) The United States exported newspapers to other countries.
 - (C) People were becoming increasingly aware of national and international issues.
 - (D) Communities remained isolated despite the growth of popular journalism
7. The word " that" in line 21 refers to
- (A) century
 - (B) publication
 - (C) circulation
 - (D) period
8. The word "astounding" in line 22 is closest in meaning to
- (A) surprising
 - (B) estimated
 - (C) encouraging
 - (D) sudden
9. Why does the author mention Edward Bellamy's novel *Looking Backward*?
- (A) To illustrate how advanced the technology of printing had become
 - (B) To emphasize the influence of the printed word on a society undergoing rapid change
 - (C) To document its prediction about the popularity of newspapers
 - (D) To demonstrate that books had replaced newspapers and magazines as the leading source of information

Question 10-19

Glass is a remarkable substance made from the simplest raw materials. It can be colored or colorless, monochrome or polychrome, transparent, translucent, or opaque. It is lightweight impermeable to liquids, readily cleaned and reused, durable yet fragile, and often very beautiful. Glass can be decorated in multiple ways and its optical properties are exceptional. In all its myriad forms – as table ware, containers, in architecture and design – glass represents a major achievement in the history of technological developments.

Since the Bronze Age about 3,000 B.C., glass has been used for making various kinds of objects. It was first made from a mixture of silica, lime and an alkali such as soda or potash, and these remained the basic ingredients of glass until the development of lead glass in the seventeenth century. When heated, the mixture becomes soft and malleable and can be formed by various techniques into a vast array of shapes and sizes. The homogeneous mass thus formed by melting then cools to create glass, but in contrast to most materials formed in this way (metals, for instance), glass lacks the crystalline structure normally associated with solids, and instead retains the random molecular structure of a liquid. In effect, as molten glass cools, it progressively stiffens until rigid, but does so without setting up a network of interlocking crystals customarily associated with that process. This is why glass shatters so easily when dealt a blow. Why glass deteriorates over time, especially when exposed to moisture, and why glassware must be slowly reheated and uniformly cooled after manufacture to release internal stresses induced by uneven cooling.

Another unusual feature of glass is the manner in which its viscosity changes as it turns from a cold substance into a hot, ductile liquid. Unlike metals that flow or "freeze" at specific temperatures glass progressively softens as the temperature rises, going through varying stages of malleability until it flows like a thick syrup. Each stage of malleability allows the glass to be manipulated into various forms, by different techniques, and if suddenly cooled the object retains the shape achieved at that point. Glass is thus amenable to a greater number of heat-forming techniques than most other materials.

10. *Why* does the author list the characteristics of glass *in* lines 1-5?
- (A) To demonstrate how glass evolved
 - (B) To show the versatility of glass
 - (C) To explain glassmaking technology
 - (D) To explain the purpose of each component of glass
11. The word "durable" in line 3 is closest in meaning to
- (A) lasting
 - (B) delicate
 - (C) heavy
 - (D) Plain
12. What does the author imply about the raw materials used to make glass?
- (A) They were the same for centuries.
 - (B) They are liquid
 - (C) They are transparent
 - (D) They are very heavy.
13. According to the passage, how is glass that has cooled and become rigid different from most other rigid substances?
- (A) It has an interlocking crystal network.
 - (B) It has an unusually low melting temperature.
 - (C) It has varying physical properties.
 - (D) It has a random molecular structure.
14. The word "customarily" in line 13 is closest in meaning to
- (A) naturally
 - (B) necessarily
 - (C) usually
 - (D) certainly
15. The words "exposed to" in line 19 are closest in meaning to
- (A) hardened by
 - (B) chilled with
 - (C) subjected to
 - (D) deprived of
16. What must be done to release the internal stresses that build up in glass products during manufacture?
- (A) the glass must be reheated and evenly cooled.

- (B) the glass must be cooled quickly.
- (C) The glass must be kept moist until cooled.
- (D) The glass must be shaped to its desired form immediately

17. The word "induced" in line 21 is *closest in meaning* to

- (A) joined
- (B) missed
- (C) caused
- (D) lost

18. The word "it" in line 22 refers to

- (A) feature
- (B) glass
- (C) manner
- (D) viscosity

19. According to the passage, why can glass be more easily shaped into specific forms than can metals

- (A) It resists breaking when heated
- (B) It has better optical properties.
- (C) It retains heat while its viscosity changes.
- (D) It gradually becomes softer as its temperature rises.

Question 20-30

A great deal can be learned from the actual traces of ancient human locomotion: the footprints of early hominids. The best-known specimens are the remarkable tracks discovered at Laetoli, Tanzania, by Mary Leaky. These were left by small hominids around 3.6 to 3.75 million years ago, according to potassium – argon dates of the volcanic rocks above and below this level. These hominids walked across a stretch of moist volcanic ash, which was subsequently turned to mud by rain, and which then set like concrete.

Examination of the shape of the prints revealed to Mary Leakey that the feet had a raised arch, a rounded heel, a pronounced ball, and a big toe that pointed forward. These features, together with the weight-bearing pressure patterns, resembled the prints of upright-walking modern humans. The pressures exerted along the foot, together with the length of stride, which averaged 87 centimeters, indicated that the hominids had been walking slowly. In short, all the detectable morphological features implied that the feet that left the footprints were very little different from those of contemporary humans.

A detailed study has been made of the prints using photogrammetry, a technique for obtaining measurements through photographs, which created a drawing showing all the curves and contours of the prints. The result emphasized that there were at least seven points of similarity with modern bipedal prints, such as the depth of the heel impression, and the deep imprint of the big toe. M Day and E. Wickens also took stereophotographs of the Laetoli prints and compared them with modern prints made by men and women in similar soil conditions. Once again, the results furnished possible evidence of bipedalism. Footprints thus provide us not merely with rare impressions of the soft tissue of early hominids, but also with evidence of upright walking that in many ways is clearer than can be obtained from the analysis of bones.

The study of fossil footprints is not restricted to examples from such remote periods. Hundreds of prints are known, for example, in French caves dating from the end of the last ice age, approximately 10,000 years ago. Research by Leon Pales, using detailed silicon resin molds of footprints mostly made by bare feet, has provided information about this period.

20. What does the passage mainly discuss?

- (A) The analysis of footprint fossils
- (B) Accurate dating of hominid remains
- (C) the career of Mary Leakey
- (D) Behavioral patterns of early humans

21. The word "remarkable" in line 2 is closest in meaning to

- (A) extraordinary
- (B) enormous
- (C) various
- (D) orderly

22. The age of the Laetoli footprints was estimated by

- (A) testing the fossilized bones of the hominids
- (B) studying the shape of the footprints
- (C) analyzing nearby rock layers
- (D) comparison with footprints from other locations

25. The word "exerted" in line 11 is closest in meaning to

- (A) influenced
- (B) applied
- (C) returned
- (D) lessened

23. It can be inferred that the footprints in volcanic ash at Laetoli were well preserved because

- (A) they were buried by a second volcanic eruption
- (B) the ash contained potassium anti argon
- (C) the ash was still warm from the volcanic eruptions
- (D) suitable conditions caused the ash to harden

24. Which of the following is NOT mentioned as a characteristic of the feet in Mary Leakey's fossil find?

- (A) The shape of the heel
- (B) The number of toes
- (C) A raised arch
- (D) A pronounced ball

26. The figure of 87 centimeters mentioned in line 12 refers to the size of the

- (A) objects carried by the hominids
- (B) steps taken by the hominids
- (C) hominids bodies
- (D) hominids feet

27. Why does the author mention the "heel impression" in line 19?
- (A) To emphasize the size of the hominids foot
 - (B) To speculate on a possible injury the hominid had suffered
 - (C) To give an example of similarity to modern human footprints
 - (D) To indicate the weight of early hominids

28. The word "restricted" in line 26 is closest in meaning to

- (A) limited
- (B) improved
- (C) continued
- (D) succeeded

29. What can be inferred about the footprints found in French caves mentioned in the last paragraph?

- (A) They show more detail than the Laetoli prints.
- (B) They are of more recent origin than the Laetoli prints.
- (C) They are not as informative as the Laetoli prints.
- (D) They are more difficult to study than the Laetoli prints

30. Which of the following terms is defined in the passage?

- (A) "hominids" (line 3)
- (B) "arch" (line 9)
- (C) "photogrammetry" (line 16)
- (D) "silicon resin molds" (line 29)

Questions 31-40

The livelihood of each species in the vast and intricate assemblage of living things depends on the existences of other organisms. This interdependence is sometimes subtle, sometimes obvious. Perhaps the most straight forward dependence of one species on another occurs with parasites, organisms that live on or in other living things and derive nutrients directly from them. The parasitic way of life is widespread. A multitude of microorganisms(including viruses and bacteria) and an army of invertebrates – or creatures lacking a spinal column (including crustaceans, insects, and many different types of worms) –make their livings directly at the expense of other creatures. In the face of this onslaught, living things have evolved a variety of defense mechanisms for protecting their bodies from invasion by other organisms.

Certain fungi and even some kinds of bacteria secrete substances known as antibiotics into their external environment. These substances are capable of killing or inhibiting the growth of various kinds of bacteria that also occupy the area, thereby eliminating or reducing the competition for nutrients. The same principle is used in defense against invaders in other groups of organisms. For example, when attacked by disease-causing fungi or bacteria, many kinds of plants produce chemicals that help to ward off the invaders.

Members of the animal kingdom have developed a variety of defense mechanisms for dealing with parasites. Although these mechanisms vary considerably, all major groups of animals are capable of detecting and reacting to the presence of "foreign" cells. In fact, throughout the animal kingdom, from sponges to certain types of worms, shellfish, and all vertebrates (creatures possessing a spinal column), there is evidence that transplants of cells or fragments of tissues into an animal are accepted only if they come from genetically compatible or closely related individuals.

The ability to distinguish between "self" and "nonself", while present in all animals, is most efficient among vertebrates, which have developed an immune system as their defense mechanism. The immune system recognizes and takes action against foreign invaders and transplanted tissues that are treated as foreign cells.

31. What does the passage mainly discuss?

- (A) how parasites reproduce
- (B) how organisms react to invaders
- (C) how antibiotics work to cure disease
- (D) how the immune systems of vertebrates developed

32. The word "intricate" in line 1 is closest in meaning to

- (A) difficult
- (B) widespread
- (C) critical
- (D) complex

33. The expression "an army" in line 6 is closest in meaning to

- (A) an illness
- (B) an attack
- (C) a large number
- (D) a distinct type

34. The expression "an army" in line 6 is closest in meaning to

- (A) an illness
- (B) an attack
- (C) a large number
- (D) a distinct type

38. According to the passage, the ability to distinguish between "self" and "nonself" enables vertebrates to

35. According to the passage, some organisms produce antibiotics in order to
- (A) prevent disease in humans
 - (B) aid digestion
 - (C) fight off other organisms
 - (D) create new types of nutrients

35. The word "vary" in line 19 is closest in meaning to

- (A) differ
- (B) endure
- (C) balance
- (D) contribute

36. The word "they" in line 23 refers to

- (A) sponges, worms and shellfish
- (B) vertebrates
- (C) individuals
- (D) transplants

37. According to the passage, a transplant of tissue between genetically incompatible organisms will result in the transplanted tissue

- (A) becoming a parasite
- (B) being treated as an invader
- (C) altering its genetic makeup
- (D) developing a new immune system
- (A) accept transplanted cells
- (B) detect and react to invasion
- (C) weaken their immune system
- (D) get rid of antibiotics

39. All of the following are defined in the passage EXCEPT

- (A) parasites(line 4)
- (B) invertebrates(line7)
- (C) nutrients (line14)
- (D) vertebrates(line 22)

40. The paragraph following the passage most probably discusses

- (A) how the immune system in vertebrates fights off foreign cells
- (B) different types of bacteria and lung
- (C) how vertebrates and invertebrates differ
- (D) examples of different groups of organisms

Question 41-50

The development of jazz can be seen as part of the larger continuum of American popular music, especially dance music. In the twenties, jazz became the hottest new thing in dance music, much as ragtime had at the turn of the century, and as would rhythm and blues in the fifties, rock in the fifties, and disco in the seventies.

But two characteristics distinguish jazz from other dance music. The first is improvisation, the changing of a musical phrase according to the player's inspiration. Like all artists, jazz musicians strive for an individual style, and the improvise or paraphrased is a jazz musician's main opportunity to display his or her individuality. In early jazz, musicians often improvised melodies collectively, thus creating a kind of polyphony. There was little soloing as such, although some New Orleans players, particularly cornet player Buddy Bolden, achieved local fame for their ability to improvise a solo. Later the idea of the chorus-long or multichorus solo took hold. Louis Armstrong's instrumental brilliance, demonstrated through extended solos, was a major influence in this development.

Even in the early twenties, however, some jazz bands had featured soloists. Similarly, show orchestras and carnival bands often included one or two such "get-off" musicians. Unimproved, completely structured jazz does exist, but the ability of the best jazz musicians to create music of great cohesion and beauty during performance has been a hallmark of the music and its major source of inspiration and change.

The second distinguishing characteristic of jazz is a rhythmic drive that was initially called "hot" and later "swing". In playing hot, a musician consciously departs from strict meter to create a relaxed sense of phrasing that also emphasizes the underlying rhythms. ("Rough" tone and use of moderate vibrato also contributed to a hot sound.) Not all jazz is hot, however, many early bands played unadorned published arrangements of popular songs. Still, the proclivity to play hot distinguished the jazz musician from other instrumentalists.

41. The passage answers which of the following questions?
- (A) which early jazz musicians most Influenced rhythm and blues music?
 - (B) What are the differences between jazz and other forms of music?
 - (C) Why Is dancing closely related to popular music in the United States?
 - (D) What Instruments comprised a typical jazz band of the 1920's?
42. Which of the following preceded jazz as a popular music for dancing?
- (A) Disco
 - (B) Rock
 - (C) Rhythm and blues
 - (D) Ragtime
43. According to the passage, jazz musicians are able to demonstrate their individual artistry mainly by?
- (A) creating musical variations while performing
 - (B) preparing musical arrangements
 - (C) reading music with great skill
 - (D) being able to play all types of popular music
44. Which of the following was the function of "get-off" musicians (line 16)?
- (A) Assist the other band members in packing up after a performance
 - (B) Teach dance routines created for new music
 - (C) Lead the band
 - (D) Provide solo performances in a band or orchestra
45. The word "cohesion" in line 18 is closest in meaning to
- (A) sorrow
 - (B) fame
 - (C) unity
 - (D) vibration
46. The word "initially" in line 20 is closest in meaning to
- (A) at first
 - (B) shortly
 - (C) alphabetically
 - (D) in fact
47. The word "consciously" in line 21 is closest in meaning to
- (A) carelessly
 - (B) easily
 - (C) periodically
 - (D) purposely
48. The word "unadorned" in line 24 is closest in meaning to

- (A) lovely
- (B) plain
- (C) disorganized
- (D) inexpensive

49. Which of the following terms is defined in the passage?

- (A) "improvisation" (line 6)
- (B) "polyphony" (line 10)
- (C) "cornet player" (line 11)
- (D) "multichorus" (line 12)

50. The topic of the passage is developed primarily by means of

- (A) dividing the discussion into two major areas
- (B) presenting contrasting points of view
- (C) providing biographies of famous musician
- (D) describing historical events in sequence

Questions 1-11

Before the 1500's, the western plains of North America were dominated by farmers. One group, the Mandans, lived in the upper Missouri River country, primarily in present-day North Dakota. They had large villages of houses built close together. The tight arrangement enabled the Mandans to protect themselves more easily from the attacks of others who might seek to obtain some of the food these highly capable farmers stored from one year to the next.

The women had primary responsibility for the fields. They had to exercise considerable skill to produce the desired results, for their northern location meant fleeting growing seasons. Winter often lingered; autumn could be ushered in by severe frost. For good measure, during the spring and summer, drought, heat, hail, grasshoppers, and other frustrations might await the wary grower.

Under such conditions, Mandan women had to grow maize capable of weathering adversity. They began as early as it appeared feasible to do so in the spring, clearing the land, using fire to clear stubble from the fields and then planting. From this point until the first green corn could be harvested, the crop required labor and vigilance.

Harvesting proceeded in two stages. In August the Mandans picked a smaller amount of the crop before it had matured fully. This green corn was boiled, dried, and shelled, with some of the maize slated for immediate consumption and the rest stored in animal-skin bags. Later in the fall, the people picked corn. They saved the best of the harvest for seeds or for trade, with the remainder eaten right away or stored for later use in underground reserves. With appropriate banking of the extra food, the Mandans protected themselves against the disaster of crop failure and accompanying hunger.

The women planted another staple, squash, about the first of June, and harvested it near the time of the green corn harvest. After they picked it, they sliced it, dried it, and strung the slices before they stored them. Once again, they saved the seed from the best of the year's crop. The Mandans also grew sunflowers and tobacco; the latter was the particular task of the old men.

1. The Mandans built their houses close together in order to
 - (A) guard their supplies of food
 - (B) protect themselves against the weather
 - (C) allow more room for growing corn
 - (D) share farming implements
2. The word "enabled" in line 4 is closest in meaning to
 - (A) covered
 - (B) reminded
 - (C) helped
 - (D) isolated
3. The word "considerable" in line 8 is closest in meaning to
 - (A) planning
 - (B) much
 - (C) physical
 - (D) flew
4. Why does the author believe that the Mandans were skilled farmers?
 - (A) They developed effective fertilizers.
 - (B) They developed new varieties of corn.
 - (C) They could grow crops in most types of soil.
 - (D) They could grow crops despite adverse weather.
5. The word "consumption" in line 18 is closest in meaning to
 - (A) decay
 - (B) planting
 - (C) eating
 - (D) conversion
6. Which of the following processes does the author imply was done by both men and women?
 - (A) Clearing fields
 - (B) Planting corn
 - (C) Harvesting corn
 - (D) harvesting squash.
7. The word "disaster" in line 22 is closest in meaning to

- (A)control
- (B)catastrophe
- (C)avoidance
- (D)history

8. According to the passage, the Mandans preserved their food by
- (A)smoking
 - (B)drying
 - (C)freezing.
 - (D)salting

9. The word "it" in line 25 refers to
- (A)June
 - (B)corn
 - (C)time
 - (D)squash

10. Which of the following crops was cultivated primarily by men
- (A) Corn
 - (B)Squash
 - (C)Sunflower
 - (D)Tobacco

11. Throughout the passage, the author implies that the Mandans
- (A)planned for the future
 - (B) valued individuality
 - (C)were open to strangers
 - (D)were very adventurous

Questions 12-20

The elements other than hydrogen and helium exist in such small quantities that it is accurate to say that the universe is somewhat more than 25 percent helium by weight and somewhat less than 25 percent hydrogen.

Astronomers have measured the abundance of helium throughout our galaxy and in other galaxies as well. Helium has been found in old stars, in relatively young ones, in interstellar gas, and in the distant objects known as quasars. Helium nuclei have also been found to be constituents of cosmic rays that fall on the earth (cosmic "rays" are not really a form of radiation; they consist of rapidly moving particles of numerous different kinds). It doesn't seem to make very much difference where the helium is found. Its relative abundance never seems to vary much. In some places, there may be slightly more of it; in others, slightly less, but the ratio of helium to hydrogen nuclei always remains about the same.

Helium is created in stars. In fact, nuclear reactions that convert hydrogen to helium are responsible for most of the energy that stars produce. However, the amount of helium that could have been produced in this manner can be calculated, and it turns out to be no more than a few percent. The universe has not existed long enough for this figure to be significantly greater. Consequently, if the universe is somewhat more than 25 percent helium now, then it must have been about 25 percent helium at a time near the beginning.

However, when the universe was less than one minute old, no helium could have existed. Calculations indicate that before this time temperatures were too high and particles of matter were moving around much too rapidly. It was only after the one-minute point that helium could exist. By this time, the universe had cooled sufficiently that neutrons and protons could stick together. But the nuclear reactions that led to the formation of helium went on for only a relatively short time. By the time the universe was a few minutes old, helium production had effectively ceased.

12. What does the passage mainly explain? (A) How stars produce energy (B) The difference between helium and hydrogen (C) When most of the helium in the universe was formed (D) Why hydrogen is abundant
13. According to the passage, helium is (A) the second-most abundant element in the universe (B) difficult to detect (C) the oldest element in the universe (D) the most prevalent element in quasars
14. The word "constituents" in line 7 is closest in meaning to (A) relatives (B) causes (C) components (D) targets
15. Why does the author mention "cosmic rays" in line 7? (A) As part of a list of things containing helium (B) As an example of an unsolved astronomical puzzle (C) To explain how the universe began (D) To explain the abundance of hydrogen in the universe
16. The word "vary" in line 10 is closest in meaning to (A) mean (B) stretch (C) change (D) include
17. The creation of helium within stars (A) cannot be measured (B) produces energy (C) produces hydrogen as a by-product (D) causes helium to be much more abundant in old stars than in young stars
18. The word "calculated" in line 15 is closest in meaning to (A) ignored (B) converted (C) increased (D) determined
19. Most of the helium in the universe was formed (A) in interstellar space (B) in a very short time (C) during the first minute of the universe's existence (D) before most of the hydrogen

20. The word "ceased" in line 26 is closest in meaning to

- (A) extended
- (B) performed
- (C) taken hold
- (D) stopped

Questions 21-30

In colonial America, people generally covered their beds with decorative quilts resembling those of the lands from which the quitters had come. Wealthy and socially prominent settlers made quilts of the English type, cut from large lengths of cloth of the same color and texture rather than stitched together from smaller pieces. They mad these until the advent of the Revolutionary War in I 775, when everything English came to be frowned upon.

Among the whole-cloth quilts made by these wealthy settlers during the early period are those now called linsey-woolseys. This term was usually applied to a fabric of wool and linen used In heavy clothing and quilted petticoats worn in the wintertime. Despite the name, linsey-woolsey bedcovers did not often contain linen. Rather, they were made of a lop layer of woolen or glazed worsted wool fabric, consisting of smooth, compact yarn from long wool fiber dyed dark blue, green, or brown with a bottom layer of a coarser woolen material, either natural or a shade of yellow. The filling was a soft layer of wool which had been cleaned and separated and the three layers were held together with decorative stitching done with homespun linen thread. Later, cotton thread WM used for this purpose. The design of the stitching was often a simple one composed of interlocking circles or crossed diagonal lines giving a diamond pattern.

This type of heavy, warm, quilted bedcover was so large that it hung to the floor. The corners are cut out at the foot of the cover so that the quilt fit snugly around the tall four-poster, beds of the 1700's, which differed from those of today in that they were shorter and wider; they were short because people slept in a semi-sitting position with many bolsters or pillows, and wide, because each bed often slept three or more. The linsey-woolsey covering was found in the colder regions of the country because of the warmth it afforded. There was no central heating and most bedrooms did not have fireplaces.

21. What does this passage mainly discuss? (A)The processing of wool (B)Linsey-woolsey bedcovers (C)Sleeping habits of colonial Americans (D)Quilts made in England
22. The word "prominent" in line 3 is closest in meaning to (A)isolated (B)concerned (C)generous (D)distinguished
23. The author mention the Revolutionary War as a time period when (A) quills were supplied to the army (B) more immigrants arrived from England (C) quills imported from England became harder to find (D) people's attitudes toward England changed.
24. The phrase "applied to" in line 8 is closest in meaning to (A) sewn onto (B) compared to (C) used for (D) written down on
25. The term "linsey-woolsey" originally meant fabric used primarily in (A)quilts (B)sheets (C)clothing (D)pillows
26. The word "coarser" in line 13 is closest in meaning to (A)older (B) less heavy (C)more attractive (D) rougher
27. The quilts described in the second and third paragraphs were made primarily of (A) wool (B) linen (C) cotton (D) a mixture of fabrics
28. It can be inferred from the third paragraph that the sleeping habits of most Americans have changed since the 1700's in all the following ways EXCEPT (A) the position in which people sleep

- (B) the numbers of bolsters or pillows people sleep on
- (C) the length of time people sleep
- (D) the number of people who sleep in one bed

29. The word "afforded" in line 24 is closest in meaning to

- (A) provided
- (B) spent
- (C) avoided
- (D) absorbed

30. Which of the following was most likely to be found in a bedroom in the colder areas of the American colonies?

- (A) A linsey-woolsey
- (B) A vent from a central heating system
- (C) A fireplace
- (D) A wood stove

Questions 31-40

Growing tightly packed together and collectively weaving a dense canopy of branches, a stand of red alder trees can totally dominate a site to the exclusion of almost everything else. Certain species such as salmonberry and sword ferns have Line adapted to the limited sunlight dappling through the canopy, but few evergreen trees (*S*) will survive there; still fewer can compete with the early prodigious growth of alders. A Douglas fir tree reaches its maximum rate of growth ten years later than an alder, and if the two of them begin life at the same time, the alder quickly outgrows and dominates the Douglas fir. After an alder canopy has closed, the Douglas fir suffers a marked decrease in growth, often dying within seven years. Even more shade-tolerant species of trees such as hemlock may remain badly suppressed beneath aggressive young alders.

Companies engaged in intensive timber cropping naturally take a dim view of alders suppressing more valuable evergreen trees. But times are changing; a new generation of foresters seems better prepared to Include in their management plans consideration of the vital ecological role alders, play.

Among the alder's valuable ecological contributions is its capacity to fix nitrogen in nitrogen-deficient soils. Alder roots contain clusters of nitrogen-fixing nodules like those found on legumes such as beans. in addition, newly developing soils exposed by recent glacier retreat and planted with alders show that these trees are applying the equivalent of ten bags of high-nitrogen fertilizer to each hectare per year. Other chemical changes to soil in which they are growing Include a lowering of the base content and rise In soil acidity, as well as a substantial addition of carbon and calcium. to the soil,

Another important role many alders play in the wild, particularly in mountainous areas, is to check the rush of water during spring melt. In Japan and elsewhere, the trees are planted to stabilize soil on steep mountain slopes. Similarly, alders have been planted to stabilize and rehabilitate waste material left over from old mines, flood deposits, and landslide areas in both Europe and Asia.

31. What does the passage mainly discuss?
(A) Differences between alder trees and Douglas fir trees
(B) Alder trees as a source of timber
(C) Management plans for using alder trees to improve soil
(D) The relation of alder trees to their forest environments
32. The word "dense" in line 1 is closest in meaning to
(A) dark
(B) tall
(C) thick
(D) broad
33. Alder trees can suppress the growth of nearby trees by depriving them of
(A) nitrogen
(B) sunlight
(C) soil nutrients
(D) water
34. The passage suggests that Douglas fir trees are
(A) a type of alder
(B) a type of evergreen
(C) similar to sword ferns
(D) fast-growing trees
35. It can be inferred from paragraph 1 that hemlock trees
(A) are similar in size to alder trees.
(B) interfere with the growth of Douglas fir trees
(C) reduce the number of alder trees in the forest
(D) need less sunlight than do Douglas fir trees
36. It can be inferred from paragraph 2 that previous generations of foresters
(A) did not study the effects of alders on forests
(B) did not want alders in forests
(C) harvested alders for lumber
(D) used alders to control the growth of evergreens
(C) bags
(D) chemical changes
37. The word "they" in line 21 refers to
(A) newly developing soils
(B) alders
38. According to the passage that alders are

used in mountainous areas to

- (A) nitrogen
- (B) calcium
- (C) carbon
- (D) oxygen

39. It can be Inferred from the passage that alders are used in mountainous areas to
- (A) prevent water from carrying away soil
 - (B) hold the snow
 - (C) protect mines
 - (D) provide material for housing

40. What is the author's main purpose in the passage?
- (A) To argue that alder trees are useful in forest management
 - (B) To explain the life cycle of alder trees
 - (C) To criticize the way alders take over and eliminate forests
 - (D) To illustrate how alder trees control soil erosion

Questions 41-50

In taking up new life across the Atlantic, the early European settlers of the United States did not abandon the diversions with which their ancestors had traditionally relieved the tedium of life. Neither the harshness of existence on the new continent nor the scattered population nor the disapproval of the clergy discouraged the majority from the pursuit of pleasure.

City and country dwellers, of course, conducted this pursuit in different ways. Farm dwellers in their isolation not only found it harder to locate companions in play but also, thanks to the unending demands and pressures of their work, felt it necessary to combine fun with purpose. No other set of colonists too seriously one expression of the period. "Leisure is time for doing something useful." In the countryside farmers therefore relieved the burden of the daily routine with such relaxation as hunting, fishing, and trapping. When a neighbor needed help, families rallied from miles around to assist in building a house or barn, husking corn, shearing sheep, or chopping wood. Food, drink, and celebration after the group work provided relaxation and soothed weary muscles.

The most eagerly anticipated social events were the rural fairs. Hundreds of men, women, and children attended from far and near. The men bought or traded farm animals and acquired needed merchandise while the women displayed food prepared in their kitchens, and everyone, including the youngsters, watched or participated in a variety of competitive sports, with prizes awarded to the winners. These events typically included horse races, wrestling matches, and foot races, as well as some nonathletic events such as whistling competitions. No other occasions did so much to relieve the isolation of farm existence.

With the open countryside everywhere at hand, city dwellers naturally shared in some of the rural diversions. Favored recreations included fishing, hunting, skating, and swimming. But city dwellers also developed other pleasures, which only compact communities made possible.

41. What is the passage mainly about?
- (A) Methods of farming used by early settlers of the United States
 - (B) Hardships faced by the early settlers of the United States
 - (C) Methods of buying, selling, and trading used by early settlers of the United States
 - (D) Ways in which early settlers of the United States relaxed
42. What can be inferred about the diversions of the early settlers of the United States?
- (A) They followed a pattern begun in Europe.
 - (B) They were enjoyed more frequently than in Europe.
 - (C) The clergy organized them.
 - (D) Only the wealthy participated in them.
43. Which of the following can be said about the country dwellers' attitude toward "the pursuit of pleasure"?
- (A) They felt that it should help keep their minds on their work.
 - (B) They felt that it was not necessary.
 - (C) They felt that it should be productive.
 - (D) They felt that it should not involve eating and drinking.
44. The phrase "thanks to" in line 8 is closest in meaning to
- (A) grateful for
 - (B) help with
 - (C) because of
 - (D) machines for
45. The word "their" in line 8 refers to
- (A) ways
 - (B) farm dwellers
 - (C) demands
 - (D) pressures
 - (E) Positive and negative
46. What is meant by the phrase "double-purpose" in line 11?
- (A) Very frequent
 - (B) Useful and enjoyable
 - (C) Extremely necessary
47. The phrase "eagerly anticipated" in line 16 is closest in meaning to
- (A) well organized
 - (B) old-fashioned

- (C) strongly opposed
- (D) looked forward to

48. Which of the following can be said about the rural diversions mentioned in the last paragraph in which city dwellers also participated?

- (A) They were useful to the rural community.
- (B) They involved the purchase items useful in the home.
- (C) They were activities that could be done equally easily in the towns
- (D) They were all outdoor activities.

49. What will the author probably discuss in the paragraph following this passage?

- (A) The rural diversions enjoyed by both urban and rural people
- (B) Leisure activities of city dwellers
- (C) Building methods of the early settlers in rural areas
- (D) Changes in the lifestyles of settlers' as they moved to the cities

50. Where in the passage does the author mention factors that might prevent people from enjoying themselves?

- (A) Lines 3-5
- (B) Lines 12-14
- (C) Lines 17-20
- (D) Lines 25-27

toefl 12

Questions: 1-10

A seventeenth-century theory of burning proposed that anything that burns must contain material that the theorists called "phlogiston." Burning was explained as the release of phlogiston from the combustible material to the air. Air was thought essential, since it had to provide a home for the released phlogiston. There would be a limit to the phlogiston transfer, since a given volume of air could absorb only so much phlogiston. When the air had become saturated, no additional amounts of phlogiston could leave the combustible substance, and the burning would stop. Burning would also stop when the combustible substance was emptied of all its phlogiston.

Although the phlogiston theory was self-consistent, it was awkward because it required that imaginative, even mysterious, properties be ascribed to phlogiston. Phlogiston was elusive. No one had ever isolated it and experimentally determined its properties. At times it seemed to show a negative weight: the residue left after burning weighed more than the material before burning. This was true, for example, when magnesium burned. Sometimes phlogiston seemed to show a positive weight, when, for example, wood burned, the ash weighed less than the starting material. And since so little residue was left when alcohol, kerosene, or high-grade coal burned, these obviously different materials were thought to be pure or nearly pure phlogiston.

In the eighteenth century, Antoine Lavoisier, on the basis of careful experimentation, was led to propose a different theory of burning, one that required a constituent of air- later shown to be oxygen- for combustion. Since the weight of the oxygen is always added, the weight of the products of combustion, including the evolved gases, would always be greater than the weight of the starting material.

Lavoisier's interpretation was more reasonable and straightforward than that of the phlogiston theorists. The phlogiston theory, always clumsy, became suspect, eventually fell into scientific disrepute, and was replaced by new ideas.

1. What does the passage mainly discuss?
(A) The chemical composition of phlogiston.
(B) Attempts to explain what happens when materials burn.
(C) Limitations of seventeenth-century scientific theories.
(D) The characteristics of the residue left after fires.
2. The word "it" in line 4 refers to
(A) burning
(B) phlogiston
(C) combustible material
(D) air
3. The "phlogiston transfer" mentioned in line 5 is a term used to describe the
(A) natural limits on the total volume of phlogiston
(B) absence of phlogiston in combustible material
(C) ability of phlogiston to slow combustion
(D) release of phlogiston into the air from burning material
4. The word "properties" in line 10 is closest in meaning to
(A) interpretations
(B) locations
(C) characteristics
(D) virtues
5. The phrase "ascribed to" in line 10 is closest in meaning to
(A) analyzed and isolated in
(B) returned to their original condition in
(C) assumed to be true of
(D) diagrammed with
6. The author mentions magnesium in line 14 as an example of a substance that
(A) seemed to have phlogiston with a negative weight
(B) leaves no residue after burning
(C) was thought to be made of nearly pure phlogiston
(D) was thought to contain no phlogiston
7. The "different materials" mentioned in line 17 were considered different because they
(A) required more heat to burn than other substances did
(B) burned without leaving much residue
(C) were more mysterious than phlogiston
(D) contained limited amounts of phlogiston
8. The word "constituent" in line 19 is closest in meaning to

- (A) component
- (B) opposite
- (C) principle
- (D) temperature

9. The word "Since" in line 20 is closest in meaning to

- (A) later
- (B) because
- (C) during
- (D) although

10. Which of the following is true of both the phlogiston theory of burning and Lavoisier's theory of burning?

- (A) Both theories propose that total weight always increases during burning.
- (B) Both theories are considered to be reasonable and straightforward.
- (C) Both theories have difficulty explaining why residue remains after burning.
- (D) Both theories recognize that air is important to combustion.

Questions 11-22

Iron production was revolutionized in the early eighteenth century when coke was first used instead of charcoal for refining iron ore. Previously the poor quality of the iron had restricted its use in architecture to items such as chains and tie bars for supporting arches, vaults, and walls. With the improvement in refining ore, it was now possible to make cast-iron beams, columns, and girders. During the nineteenth century further advances were made, notably Bessemer's process for converting iron into steel, which made the material more commercially viable.

Iron was rapidly adopted for the construction of bridges, because its strength was far greater than that of stone or timber, but its use in the architecture of buildings developed more slowly. By 1800 a complete internal iron skeleton for buildings had been developed in industrial architecture replacing traditional timber beams, but it generally remained concealed. Apart from its low cost, the appeal of iron as a building material lay in its strength, its resistance to fire, and its potential to span vast areas. As a result, iron became increasingly popular as a structural material for more traditional styles of architecture during the nineteenth century, but it was invariably concealed.

Significantly, the use of exposed iron occurred mainly in the new building types spawned by the Industrial Revolution: in factories, warehouses, commercial offices, exhibition halls, and railroad stations, where its practical advantages far outweighed its lack of status. Designers of the railroad stations of the new age explored the potential of iron, covering huge areas with spans that surpassed the great vaults of medieval churches and cathedrals. Paxton's Crystal Palace, designed to house the Great Exhibition of 1851, covered an area of 1848 feet by 408 feet in prefabricated units of glass set in iron frames. The Paris Exhibition of 1889 included both the widest span and the greatest height achieved so far with the Halle des Machines, spanning 362 feet, and the Eiffel Tower 1,000 feet high. However, these achievements were mocked by the artistic elite of Paris as expensive and ugly follies. Iron, despite its structural advantages, had little aesthetic status. The use of an exposed iron structure in the more traditional styles of architecture was slower to develop.

11. What does the passage mainly discuss?

- (A) Advances in iron processing in the eighteenth and nineteenth centuries
- (B) The effects of the Industrial Revolution on traditional architectural styles
- (C) Advantages of stone and timber over steel as a building material
- (D) The evolution of the use of iron in architecture during the 1800's

12. The word "revolutionized" in line 1 is closest in meaning to

- (A) quickly started
- (B) gradually opened
- (C) dramatically changed
- (D) carefully examined

16. The word "appeal" in line 12 is closest in meaning to

- (A) adjustment
- (B) assignment
- (C) attraction

13. According to the passage, iron was NOT used for beams, columns, and girders prior to the early eighteenth century because

- (A) all available iron was needed for other purposes
- (B) limited mining capability made iron too expensive
- (C) iron was considered too valuable for use in public buildings
- (D) the use of charcoal for refining ore produced poor quality iron

14. Iron replaced stone and timber in the building of bridges because iron was considered

- (A) more beautiful
- (B) new and modern
- (C) much stronger
- (D) easier to transport

15. The word "it" in line 11 refers to

- (A) industrial architecture
 - (B) internal iron skeleton
 - (C) stone
 - (D) strength
- (D) attempt

17. The word "spawned" in line 17 is closest in

meaning to
(A)Created
(B)maintained
(C)rejected
(D)exposed

18. The word "surpassed" in line 20 is closest in meaning to

(A)imitated
(B)exceeded
(C)approached
(D)included

19. According to paragraph 3, the architectural significance of the Halle des Machines was its

(A)wide span
(B)great height
(C)unequaled beauty
(D)prefabricated units of glass

20. How did the artistic elite mentioned in the passage react to the buildings at the Paris Exhibition?

(A) They tried to copy them.
(B) They ridiculed them.
(C) They praised them.
(D) They refused to pay to see them.

21. It can be inferred that the delayed use of exposed iron structures in traditional styles of architecture is best explained by the

(A) impracticality of using iron for small, noncommercial buildings
(B) association of iron architecture with the problems of the Industrial Revolution
(C) general belief that iron offered less resistance to fire and harsh weather than traditional materials
(D) general perception that iron structures were not aesthetically pleasing

22. The paragraph following the passage most probably discusses

(A) the gradual inclusion of exposed iron in traditional styles of architecture
(B) further improvements in iron processing methods
(C) the return to traditional building materials for use in commercial structures
(D) the decreased use of stone and timber as a building material

Questions 23~32

The most easily recognizable meteorites are the iron variety, although they only represent about 5 percent of all meteorite falls. They are composed of iron and nickel along with sulfur, carbon, and traces of other elements. Their composition is thought to be similar to that of Earth's iron core and indeed they might have once made up the core of a large planetoid that disintegrated long ago. Due to their dense structure, iron meteorites have the best chance of surviving an impact, and most are found by farmers plowing their fields.

One of the best hunting grounds for meteorites is on the glaciers of Antarctica where the dark stones stand out in stark contrast to the white snow and ice. When meteorites fall on the continent they are embedded in the moving ice sheets. At places where the glaciers move upward against mountain ranges, meteorites are left exposed on the surface. Some of the meteorites that have landed in Antarctica are believed to have come from the Moon and even as far away as Mars, when large impacts blasted out chunks of material and hurled them toward Earth.

Perhaps the world's largest source of meteorites is the Nullarbor Plain, an area of limestone that stretches for 400 miles along the southern coast of Western and South Australia. The pale, smooth desert plain provides a perfect backdrop for spotting meteorites, which are usually dark brown or black. Since very little erosion takes place, the meteorites are well preserved and are found just where they landed. Over 1,000 fragments from 150 meteorites that fell during the last 20,000 years have been recovered. One large iron meteorite, called the Mundrabilla meteorite, weighed more than 11 tons.

Stony meteorites, called chondrites, are the most common type and make up more than 90 percent of all falls. But because they are similar to Earth materials and therefore erode easily, they are often difficult to find. Among the most ancient bodies in the solar system are the carbonaceous chondrites that also contain carbon compounds that might have been the precursors of life on Earth.

23. What is the passage mainly about?
- (A) Finding meteorites on Earth's surface
 - (B) How the composition of meteorites is similar to that of Earth
 - (C) Why most meteorites do not survive impact with Earth
 - (D) The origins of meteorites

24. The word "core" in line 4 is closest in meaning to
- (A) center
 - (B) surface
 - (C) mineral
 - (D) field

25. The author mentions "dark stones" and "white snow" in line 9 to illustrate that.
- (A) meteorites are found most often in Antarctica
 - (B) glaciers stop meteorites from mixing with soil
 - (C) meteorites are easier to find in glacial areas
 - (D) most of Antarctica is covered with meteorites

29. Where was the Mundrabilla meteorite discovered?
- (A) On the Nullarbor Plain
 - (B) In a field
 - (C) On a mountain

26. The word "embedded" in line 10 is closest in meaning to
- (A) isolated
 - (B) encased
 - (C) enhanced
 - (D) enlarged

27. The word "spotting" in line 17 is closest in meaning to
- (A) removing
 - (B) identifying
 - (C) cooling
 - (D) falling

28. The passage suggests that which of the following is most commonly responsible for the poor preservation of meteorites that fall to Earth?
- (A) The size of the fragments
 - (B) Ice sheets
 - (C) Erosion
 - (D) Desert heat

- (D) In Antarctica

30. The word "they" in line 25 refers to (A) stony meteorites

- (B) falls
- (C) Earth materials
- (D) ancient bodies

31. Why does the author mention carbonaceous chondrites (line 26)?

- (A) They are the largest meteorites found on Earth
- (B) They are most likely to be found whole.
- (C) They come from outside the solar system.
- (D) They may be related to the origins of life on Earth.

32. According to the passage, stony meteorites are

- (A) composed of fragmented materials
- (B) less likely to be discovered than iron meteorites
- (C) mostly lost in space
- (D) found only on the Nullarbor Plain

Questions 33-41

A pioneering set of experiments has been important in the revolution in our understanding of animal behavior—a revolution that eroded the behaviorist dogma that only humans have minds. These experiments were designed to detect consciousness—that is, signs of self-awareness or self-recognition—in animals other than humans.

The scientific investigation of an experience as private as consciousness is frustratingly beyond the usual tools of the experimental psychologist. This may be one reason that many researchers have shied away from the notion of mind and consciousness in nonhuman animals. In the late 1960's, however, psychologist Gordon Gallup devised a test of the sense of self: the mirror test. If an animal were able to recognize its reflection in a mirror as "self," then it could be said to possess an awareness of self, or consciousness. It is known that a cat or a dog reacts to its own image in mirror, but often it treats it as that of another individual whose behavior very soon becomes puzzling and boring.

The experiment called for familiarizing the animal with the mirror and then marking the animal's forehead with a red spot. If the animal saw the reflection as just another individual, it might wonder about the curious red spot and might even touch the mirror. But if the animal realized that the reflection was of itself, it would probably touch the spot on its own body. The first time Gallup tried the experiment with a chimpanzee, the animal acted as if it knew that the reflection was its own, it touched the red spot on its forehead. Gallup's report of the experiment, published in a 1970 article, was a milestone in our understanding of animal minds and psychologists wondered how widespread self-recognition would prove to be.

28. The word "dogma" in line 3 is closest in meaning to

- (A) evaluation
- (B) proof
- (C) intention
- (D) belief

34. The word "detect" in line 3 is closest in meaning to

- (A) imitate the behavior of
- (B) provide a reason for
- (C) discover the presence of
- (D) report a need for

35. Which of the following statements best describes the behaviorist position with regard to consciousness in nonhuman animals?

- (A) Most nonhuman animals show signs of self-consciousness.
- (B) Most nonhuman animals can be taught self-consciousness.
- (C) Chimpanzees are the only nonhuman animals that have a human level of self-consciousness.
- (D) Nonhuman animals do not possess self-consciousness

38. What does the author mean when stating in line 14 that "The experiment called for familiarizing the animal with the mirror?"

- (A) The experiment required the use of a

36. The author suggests that researchers before 1960 probably avoided studying nonhuman animal consciousness because they

- (A) did not wish to experiment with live animal subjects
- (B) were discouraged by earlier unsuccessful experiments that studied human consciousness
- (C) had not yet devised adequate research methods for animal consciousness experiments
- (D) lacked the necessary laboratory equipment

37. The phrase "shied away from" in line 8 is closest in meaning to

- (A) approached
- (B) avoided
- (C) respected
- (D) allowed

chimpanzee that had not participated in previous mirror tests.

- (B) Gallup had to allow the chimpanzee to become accustomed to the mirror before he began the experiment.

- (C) Gallup had to teach the chimpanzee to recognize its reflection in the mirror.
- (D) The chimpanzee had to first watch the experiment being conducted with another chimpanzee.

39. The word "it" in line 16 refers to

- (A) red spot
- (B) animal
- (C) reflection
- (D) another individual

40. The chimpanzee in Gallup's first experiment responded to the mirror test by touching

- (A) its own forehead
- (B) the researcher's forehead
- (C) the red spot on the mirror
- (D) the red spot on another chimpanzee

41. The word "milestone" in line 20 is closest in meaning to

- (A) significant development
- (B) initial step
- (C) universal concept
- (D) obstruction to progress

Questions 42-50

Biological diversity has become widely recognized as a critical conservation issue only in the past two decades. The rapid destruction of the tropical rain forests, which are the ecosystems with the highest known species diversity on Earth, has awakened people to the importance and fragility of biological diversity. The high rate of species extinctions in these environments is jolting, but it is important to recognize the significance of biological diversity in all ecosystems. As the human population continues to expand, it will negatively affect one after another of Earth's ecosystems. In terrestrial ecosystems and in fringe marine ecosystems (such as wetlands), the most common problem is habitat destruction. In most situations, the result is irreversible. Now humans are beginning to destroy marine ecosystems through other types of activities, such as disposal and runoff of poisonous waste; in less than two centuries, by significantly reducing the variety of species on Earth, they have unraveled the course of evolution and irrevocably redirected its course.

Certainly, there have been periods in Earth's history when mass extinctions have occurred. The extinction of the dinosaurs was caused by some physical event, either climatic or cosmic. There have also been less dramatic extinctions, as when natural competition between species reached an extreme conclusion. Only .01 percent of the species that have lived on Earth have survived to the present, and it was largely chance that determined which species survived and which died out.

However, nothing has ever equaled the magnitude and speed with which the human species is altering the physical and chemical world and demolishing the environment. In fact, there is wide agreement that it is the rate of change humans are inflicting, even more than the changes themselves, that will lead to biological devastation. Life on Earth has continually been in flux as slow physical and chemical changes have occurred on Earth, but life needs time to adapt—time for migration and genetic adaptation within existing species and time for the proliferation of new genetic material and new species that may be able to survive in new environments.

42. What does the passage mainly discuss? (A) The causes of the extinction of the dinosaurs (B) The variety of species found in tropical rain forests. (C) The impact of human activities on Earth's ecosystems (D) The time required for species to adapt to new environments
43. The word "critical" in line 1 is closest in meaning to (A) negative (B) essential (C) interesting (D) complicated
44. The word "jolting" in line 5 is closest in meaning to (A) predicted (B) shocking (C) unknown (D) illuminating
45. The author mentions the reduction of the variety of species on Earth in lines 11 - 12 to suggest that (A) new habitats can be created for species (B) humans are often made ill by polluted water (C) some species have been made extinct by human activity (D) an understanding of evolution can prevent certain species from disappearing
46. The author mentions all of the following as examples of the effect of humans on the world's ecosystems EXCEPT (A) destruction of the tropical rain forests (B) habitat destruction in wetlands (C) damage to marine ecosystems (D) the introduction of new varieties of plant species
47. The author mentions the extinction of the dinosaurs in the second paragraph to emphasize that (A) the cause of the dinosaurs' extinction is unknown (B) Earth's climate has changed significantly since the dinosaurs' extinction, (C) not all mass extinctions have been caused by human activity (D) actions by humans could not stop the irreversible process of a species' extinction
48. The word "magnitude" in line 20 is closest in

meaning to

- (A) concern
- (B) determination
- (C) carelessness
- (D) extent

49. According to the passage, natural evolutionary change is different from changes caused by humans in that changes caused by humans

- (A) are occurring at a much faster rate
- (B) are less devastating to most species
- (C) affect fewer ecosystems
- (D) are reversible

50. With which of the following statements would the author be most likely to agree?

- (A) human influence on ecosystems should not be a factor in determining public policy.
- (B) The extinction of a few species is an acceptable consequence of human progress.
- (C) Technology will provide solutions to problems caused by the destruction of ecosystems.
- (D) humans should be more conscious of the influence they have on ecosystems

Questions 1-9

The geology of the Earth's surface is dominated by the particular properties of water. Present on Earth in solid, liquid, and gaseous states, water is exceptionally reactive. It dissolves, transports, and precipitates many chemical compounds and is constantly modifying the face of the Earth.

- (5) Evaporated from the oceans, water vapor forms clouds, some of which are transported by wind over the continents. Condensation from the clouds provides the essential agent of continental erosion: rain. Precipitated onto the ground, the water trickles down to form brooks, streams, and rivers, constituting what is called the hydrographic network. This immense polarized network channels the water toward a single receptacle: an ocean. Gravity dominates this entire step in the cycle because water tends to minimize its potential energy by running from high altitudes toward the reference point that is sea level.

- The rate at which a molecule of water passes through the cycle is not random but is a measure of the relative size of the various reservoirs. If we define residence time as the average time for a water molecule to pass through one of the three reservoirs-atmosphere, continent, and ocean-we see that the times are very different. A water molecule stays, on average, eleven days in the atmosphere, one hundred years on a continent and forty thousand years in the ocean. This last figure shows the importance of the ocean as the principal reservoir of the hydrosphere but also the rapidity of water transport on the continents.

- A vast chemical separation process takes place during the flow of water over the continents. Soluble ions such as calcium, sodium, potassium, and some magnesium are dissolved and transported. Insoluble ions such as aluminum, iron, and silicon stay where they are and form the thin, fertile skin of soil on which vegetation can grow. Sometimes soils are destroyed and transported mechanically during flooding. The erosion of the continents thus results from two closely linked and interdependent processes, chemical erosion and mechanical erosion. Their respective interactions and efficiency depend on different factors.

1. The word "modifying" in line 4 is closest in meaning to
 - (A) changing
 - (B) traveling
 - (C) describing
 - (D) destroying
2. The word "which" in line 5 refers to
 - (A) clouds
 - (B) oceans
 - (C) continents
 - (D) compounds
3. According to the passage, clouds are primarily formed by water
 - (A) precipitating onto the ground
 - (B) changing from a solid to a liquid state
 - (C) evaporating from the oceans
 - (D) being carried by wind
4. The passage suggests that the purpose of the "hydrographic network" (line 9) is to
 - (A) determine the size of molecules of water
 - (B) prevent soil erosion caused by flooding
 - (C) move water from the Earth's surface to the oceans
 - (D) regulate the rate of water flow from streams and rivers
5. What determines the rate at which a molecule of water moves through the cycle, as discussed in the third paragraph?
 - (A) The potential energy contained in water
 - (B) The effects of atmospheric pressure on chemical compounds
 - (C) The amounts of rainfall that fall on the continents
 - (D) The relative size of the water storage areas
6. The word "rapidity" in line 19 is closest in meaning to
 - (A) significance
 - (B) method
 - (C) swiftness
 - (D) reliability
7. The word "they" in line 24 refers to
 - (A) insoluble ions
 - (B) soluble ions
 - (C) soils
 - (D) continents

8. All of the following are example of soluble ions EXCEPT
(A) magnesium
(B) iron
(C) potassium
(D) calcium

9. The word "efficiency" in line 28 is closest in meaning to
(A) relationship
(B) growth
(C) influence
(D) effectiveness

Questions 10-19

- Among the species of seabirds that use the windswept cliffs of the Atlantic coast of Canada in the summer to mate, lay eggs, and rear their young are common murrelets, Atlantic puffins, black-legged kittiwakes, and northern gannets. Of all the birds on these cliffs, the black-legged kittiwake gull is the best suited for nesting on narrow
- (5) ledges. Although its nesting habits are similar to those of gulls that nest on flat ground, there are a number of important differences related to the cliff-nesting habit.

- The advantage of nesting on cliffs is the immunity it gives from foxes, which cannot scale the sheer rocks, and from ravens and other species of gulls, which have difficulty in landing on narrow ledges to steal eggs. This immunity has been followed
- (10) by a relaxation of the defenses, and kittiwakes do not react to predators nearly as fiercely as do ground-nesting gulls. A colony of Bonaparte's gulls responds to the appearance of a predatory herring gull by flying up as a group with a clamor of alarm calls, followed by concerted mobbing, but kittiwakes dimply ignore herring gulls, since they pose little threat to nests on cliffs. Neither do kittiwakes attempt to conceal their
- (15) nest. Most gulls keep the nest area clear of droppings, and remove empty eggshells after the chicks have hatched, so that the location of the nest is not given away.

- Kittiwakes defecate over the edge of the nest, which keeps it clean, but this practice, as well as their tendency to leave the nest littered with eggshells, makes its location very conspicuous.

- (20) On the other hand, nesting on a narrow ledge has its own peculiar problems, and kittiwake behavior has become adapted to overcome them. The female kittiwake sits when mating, whereas other gulls stand, so the pair will not overbalance and fall off the ledge. The nest is a deep cup, made of mud or seaweed, to hold the eggs safely, compared with the shallow scrape of other gulls, and the chicks are remarkably
- (25) immobile until fully grown. They do not run from their nests when approached, and if they should come near to the cliff edge, they instinctively turn back.

10. What aspect of the kittiwake gull does the passage mainly discuss?
(A) Its defensive behavior
(B) Its interactions with other gull species
(C) Its nesting habits
(D) Its physical difference from other gull species

11. The word "rear" in line 2 is closest in meaning to
(A) visit
(B) watch
(C) reverse
(D) raise

12. The word "scale" in line 8 is closest in meaning to
(A) climb
(B) avoid
(C) approach
(D) measure

15. The author mentions that eggshells litter the nests of kittiwakes in order to
(A) demonstrate that kittiwakes are not concerned about predators
(B) prove how busy kittiwakes are in

13. The word "immunity" in line 9 is closest in meaning to
(A) distance
(B) transition
(C) protection
(D) reminder

14. Why is it difficult for ravens to steal the kittiwakes' eggs?
(A) The kittiwakes can see the ravens approaching the nest.
(B) The ravens cannot land on the narrow ledges where kittiwakes nest.
(C) The kittiwakes' eggs are too big for the ravens to carry.
(D) The female kittiwakes rarely leave the nest.

- (C) caring for their offspring
(C) show a similarity to other types of gulls
(D) illustrate kittiwakes' lack of concern for their chicks

16. According to the passage, it can be inferred that which of the following birds conceal their nest?
- (A) Bonaparte's gulls
 - (B) Atlantic puffins
 - (C) Kittiwake gulls
 - (D) Northern gannets

17. The word "it" in line 17 refers to
- (A) location
 - (B) edge
 - (C) nest
 - (D) practice

18. The word "conspicuous" in line 19 is closest in meaning to
- (A) disordered
 - (B) suspicious
 - (C) noticeable
 - (D) appealing

19. The phrase "On the other hand" in line 20 is closest in meaning to
- (A) therefore
 - (B) however
 - (C) for example
 - (D) by no means

Questions 20-29

- Throughout the nineteenth century and into the twentieth, citizens of the United States maintained a bias against big cities. Most lived on farms and in small towns and believed cities to be centers of corruption, crime, poverty, and moral degradation. Their distrust was caused, in part, by a national ideology that proclaimed farming the greatest
- (5) occupation and rural living superior to urban living. This attitude prevailed even as the number of urban dwellers increased and cities became an essential feature of the national landscape. Gradually, economic reality overcame ideology. Thousands abandoned the precarious life on the farm for more secure and better paying jobs in the city. But when these people migrated from the countryside, they carried their fears and
- (10) suspicious with them. These new urbanities, already convinced that cities were overwhelmed with great problems, eagerly embraced the progressive reforms that promised to bring order out of the chaos of the city.

- One of many reforms came in the area of public utilities. Water and sewerage systems were usually operated by municipal governments, but the gas and electric
- (15) networks were privately owned. Reformers feared that the privately owned utility companies would charge exorbitant rates for these essential services and deliver them only to people who could afford them. Some city and state governments responded by regulating the utility companies, but a number of cities began to supply these services themselves. Proponents of these reforms argued that public ownership and regulation
- (20) would insure widespread access to these utilities and guarantee a fair price.

- While some reforms focused on government and public behavior, others looked at the cities as a whole. Civic leaders, convinced that physical environment influenced human behavior, argued that cities should develop master plans to guide their future growth and development. City planning was nothing new, but the rapid industrialization
- (25) and urban growth of the late nineteenth century took place without any consideration for order. Urban renewal in the twentieth century followed several courses. Some cities introduced plans to completely rebuild the city core. Most other cities contented themselves with zoning plans for regulating future growth. Certain parts of town were restricted to residential use, while others were set aside for industrial or commercial development.

20. What does the passage mainly discuss?
(A) A comparison of urban and rural life in the early twentieth century
(B) The role of government in twentieth-century urban renewal
(C) Efforts to improve urban life in the early twentieth century
(D) Methods of controlling urban growth in the twentieth century

21. The word "bias" in line 2 is closest in meaning to
(A) diagonal
(B) slope
(C) distortion
(D) prejudice

25. What concern did reformers have about privately owned utility companies?
(A) They feared the services would not be made available to all city dwellers.
(B) They believed private ownership

22. The first paragraph suggests that most people who lived in rural areas
(A) were suspicious of their neighbors
(B) were very proud of their lifestyle
(C) believed city government had too much power
(D) wanted to move to the cities

23. In the early twentieth century, many rural dwellers migrated to the city in order to
(A) participate in the urban reform movement
(B) seek financial security
(C) comply with a government ordinance
(D) avoid crime and corruption

24. The word "embraced" in line 11 is closest in meaning to
(A) suggested
(B) overestimated
(C) demanded
(D) welcomed

- would slow economic growth
(C) They did not trust the companies to obey the government regulations.
(D) They wanted to ensure that the services would be provided to rural areas.

26. The word "exorbitant" in line 16 is closest in meaning to
- (A) additional
 - (B) expensive
 - (C) various
 - (D) modified

27. All of the following were the direct result of public utility reforms EXCEPT
- (A) local governments determined the rates charged by private utility companies
 - (B) some utility companies were owned and operated by local governments
 - (C) the availability of services was regulated by local government
 - (D) private utility companies were required to pay a fee to local governments

28. The word "Proponents" in line 19 is closest in meaning to
- (A) Experts
 - (B) Pioneers
 - (C) Reviewers
 - (D) Supporters

29. Why does the author mention "industrialization" (line 24)?
- (A) To explain how fast urban growth led to poorly designed cities
 - (B) To emphasize the economic importance of urban areas
 - (C) To suggest that labor disputes had become an urban problem
 - (D) To illustrate the need for construction of new factories

Questions 30-39

- (5) By 1776 the fine art of painting as it had developed in western Europe up to this time had been introduced into the American colonies through books and prints, European visitors and immigrants, and traveling colonists who brought back copies (and a few original) of old master paintings and acquaintance with European art institutions.
- (10) By the outbreak of the Revolution against British rule in 1776, the status of the artists had already undergone change. In the mid-eighteenth century, painters had been willing to assume such artisan-related tasks as varnishing, gilding, teaching, keeping shops, and painting wheel carriages, houses, and signs. The terminology by which artists were described at the time suggests their status: "limner" was usually applied to the anonymous portrait painter up to the 1760's; "painter" characterized anyone who could paint a flat surface. By the second half of the century, colonial artists who were trained in England or educated in the classics rejected the status of laborer and thought of themselves as artists. Some colonial urban portraitists, such as John Singleton Copley,
- (15) Benjamin West, and Charles Wilson Peale, consorted with affluent patrons. Although subject to fluctuations in their economic status, all three enjoyed sufficient patronage to allow them to maintain an image of themselves as professional artists, an image indicated by their custom of signing their paintings. A few art collectors James Bowdoin III of Boston, William Byrd of Virginia, and the Aliens and Hamiltons of Philadelphia introduced European art traditions to those colonists privileged to visit their galleries, especially aspiring artists, and established in their respective communities the idea of the value of art and the need for institutions devoted to its encouragement.
- (20) Although the colonists tended to favor portraits, they also accepted landscapes, historical works, and political engravings as appropriate artistic subjects. With the coming of independence from the British Crown, a sufficient number of artists and their works were available to serve nationalistic purposes. The achievements of the colonial artists, particularly those of Copley, West, and Peale, lent credence to the boast that the new nation was capable of encouraging genius and that political liberty was congenial to the development of taste—a necessary step before art could assume an important role in the new republic.
- (25)

30. What does the passage mainly discuss?
(A) European influence on colonial American painting
(B) The importance of patronage to artist
(C) The changing status of artists in the American colonies in the eighteenth century
(D) Subjects preferred by artists in the American colonies in the eighteenth century.

31. The word "outbreak" in line 6 is closest in meaning to
(A) cause
(B) beginning
(C) position
(D) explanation

34. It can be inferred from the passage that artists who were trained in England
(A) considered artists to be superior to painters
(B) barely painted portraitists
(C) were often very wealthy

32. The word "undergone" in line 7 is closest in meaning to
(A) led to
(B) transformed
(C) preferred
(D) experienced

33. According to the passage, before the American Revolution the main task of limners was to
(A) paint wheel carriages
(B) paint portraits
(C) varnish furniture
(D) paint flat surfaces

(D) imitated English painters because it

35. The word "consorted" in line 15 is closest in meaning to
(A) made decisions

- (B) studies
- (C) agreed
- (D) associated

36. The word "sufficient" in line 16 is closest in meaning to

- (A) adequate
- (B) temporary
- (C) friendly
- (D) expensive

37. According to the passage, artists such as Copley, West and Peal signed their paintings

- (A) increased the monetary value of the paintings
- (B) made it more difficult for other artists to copy the paintings
- (C) supported the artists' image of professionalism
- (D) distinguished colonial American artists from European artists

38. The author mentions James Bowdoin III and William Byrd in line 19 as examples of which of the following?

- (A) Art gallery owners who displayed only European art
- (B) Art collectors who had a profound influence on American attitudes toward art
- (C) Artists who gave financial support to other artists
- (D) Patrons whose helped to encourage artisans to become artists

39. With which of the following would the author be most likely to agree?

- (A) Countries that have not had a political revolution are unlikely to develop great art.
- (B) The most successful art collectors are usually artists themselves.
- (C) The value of colonial American paintings decreased after the Revolution.
- (D) Colonial artists made an important contribution to the evolving culture of the new nation.

Questions 40-50

Railroads reshaped the North American environment and reoriented North American behavior. "In a quarter of a century", claimed the Omaha Daily Republican in 1883, "they have made the people of the United States homogeneous, breaking through the peculiarities and provincialisms which marked separate and unmingling sections."

- (5) The railroad simultaneously stripped the landscape of the natural resources, made velocity of transport and economy of scale necessary parts of industrial production, and carried consumer goods to households; it dispatched immigrants to unsettled places, drew emigrants away from farms and villages to cities, and sent men and guns to battle.
- (10) It standardized time and travel, seeking to annihilate distance and space by allowing movement at any time and in any season or type of weather. In its grand and impressive terminals and stations, architects recreated historic Roman temples and public baths, French chateaus and Italian bell towers—edifices that people used as stages for many of everyday life's high emotions: meeting and parting, waiting and worrying, planning new starts or coming home.
- (15) Passenger terminals, like the luxury express trains that hurled people over spots, spotlight the romance of railroading. (The twentieth-Century Limited sped between Chicago and New York in twenty hours by 1915). Equally important to everyday life were the slow freight trans chugging through industrial zones, the morning and evening commuter locals shuttling back ions and urban terminals, and the incessant
- (20) comings and goings that occurred in the classifications, or switching, yards. Moreover, in addition to its being a transportation pathway equipped with a mammoth physical plant of tracks signals, crossings, bridges, and junctions, plus telegraph and telephone lines the railroad nurtured factory complexes, coal piles, warehouses, and generating stations, forming along its right-of-way what has aptly been called "the metropolitan
- (25) corridor" of the American landscape.

40. What does the passage mainly discuss?

- (A) The influence of ancient architecture on the design of railroad terminals
(B) The importance of natural resources in the development of railroads
(C) The railroad's impact on daily life in the United States in the nineteenth century
(D) Technological improvements in the area of communication in the nineteenth century

41. It can be inferred from the quote from the Omaha Daily Republican (line 2-5) that railroads

- (A) made all sections of the nation much
(B) brought more unity to what had been a fragmented nation
(C) reduced dependence on natural resources
(D) had no effect on the environment of the United States

42. The word "it" in line 7 refers to

- (A) transport
(B) scale
(C) production
(D) railroad

47. According to the passage, which type of development lined the area along the metropolitan corridor?

- (A) Stores and shopping areas
(A) Recreational areas wealthier

43. The word "drew" in line 8 is closest

- (A) obliged
(B) designed
(C) helped
(D) attracted

44. The word "annihilate" in line 9 is closest in meaning to

- (A) conquer
(B) utilize
(C) separate
(D) mechanize

45. The word "Moreover" in line 20 is closest in meaning to

- (A) consequently
(B) furthermore
(C) although
(D) because

46. All of the following were true of impressive passenger terminals EXCEPT:

- (A) Their architecture was influenced by the architecture of Europe.
(B) Luxury express trains traveled between them.
(C) They were usually located in small towns.
(D) They were important to many commuters.

- (C) Industrial
(D) Agricultural

48. The word "aptly" in line 24 is closest in meaning to

- (A) appropriately
- (B) virtually
- (C) consistently
- (D) incessantly

49. The author mentions the Twentieth-Century Limited as an example of

- (A) a freight train
- (B) a commuter train
- (C) a luxury train
- (D) an underground train

50. The author gives a synonym for which of the following words?

- (A) Homogeneous (line 3)
- (B) Standardized (line 9)
- (C) Temples (line 11)
- (D) Classification (line 20)

Question1-12

The Native Americans of northern California were highly skilled at basketry, using the reeds, grasses, bards, and roots they found around them to fashion articles of all sorts and sizes - not only trays, containers, and cooking pots, but hats, boats, fish traps, baby carriers, and ceremonial objects.

Of all these experts, none excelled the Pomo - a group who lived on or near the coast during the 1800's, and whose descendants continue to live in parts of the same region to the same region to this day. They made baskets three feet in diameter and others no bigger than a thimble. The Pomo people were masters of decoration. Some of their baskets were completely covered with shell pendants; others with feathers that made the baskets' surfaces as soft as the breasts of birds. Moreover, the Pomo people made use of more weaving techniques than did their neighbors. Most groups made all their basketwork by twining - the twisting of a flexible horizontal material, called a weft, around stiffer vertical strands of material, the warp. Others depended primarily on coiling - a process in which a continuous coil of stiff material is held in the desired shape with tight wrapping of flexible strands. Only the Pomo people used both processes with equal ease and frequency. In addition, they made use of four distinct variations on the basic twining process, often employing more than one of them in a single article.

Although a wide variety of materials was available, the Pomo people used only a few. The warp was always made of willow, and the most commonly used welt was sedge root, a woody fiber that could easily be separated into strands no thicker than a thread. For color, the Pomo people used the bark of redbud for their twined work and dyed bullrush root for black in coiled work. Though other materials were sometimes used, these four were the staples in their finest basketry.

If the basketry materials used by the Pomo people were limited, the designs were amazingly varied. Every Pomo basketmaker knew how to produce from fifteen to twenty distinct patterns that could be combined in a number of different ways.

1. What best distinguished Pomo baskets from baskets of other groups?
 - (A) The range of sizes, shapes, and designs
 - (B) The unusual geometric
 - (C) The absence of decoration
 - (D) The rare materials used
2. The word "fashion" in line 2 is closest in meaning to
 - (A) maintain
 - (B) organize
 - (C) trade
 - (D) create
3. The Pomo people used each of the following materials to decorate baskets EXCEPT
 - (A) shells
 - (B) feathers
 - (C) leaves
 - (D) bark
4. What is the author's main point in the second paragraph?
 - (A) The neighbors of the Pomo people tried to improve on the Pomo basket weaving techniques.
 - (B) The Pomo people were the most skilled basket weavers in their region.
 - (C) The Pomo people learned their basket weaving techniques from other Native Americans.
 - (D) The Pomo baskets have been handed down for generations.
5. The word "others" in line 9 refers to
 - (A) masters
 - (B) baskets
 - (C) pendants
 - (D) surfaces

6. According to the passage is a
(A) tool for separating sedge root
(B) process used for coloring baskets
(C) pliable material woven around the warp
(D) pattern used to decorate baskets
7. According to the passage, what did the Pomo people use as the warp in their baskets?
(A) Bullrush
(B) willow
(C) Sedge
(D) Redbud
8. The word "article" in line 17 is close in meaning to
(A) decoration
(B) shape
(C) design
(D) object
9. According to the passage. The relationship between redbud and twining is most similar to the relationship between
(A) bullrush and coiling
(B) weft and warp
(C) willow and feathers
(D) sedge and weaving
10. The word "staples" in line 23 is closest in meaning to
(A) combinations
(B) limitations
(C) accessories
(D) basic elements
11. The word "distinct" in line 26 is closest in meaning to
(A) systematic
(B) beautiful
(C) different
(D) compatible
12. Which of the following statements about Pomo baskets can be best inferred from the passage?
(A) Baskets produced by other Native Americans were less varied in design than those of the Pomo people.
(B) Baskets produced by Pomo weavers were primarily for ceremonial purposes.
(C) There was a very limited number of basketmaking materials available to the Pomo people.
(D) The basketmaking production of the Pomo people has increased over the years.

Questions 13-20

Any rock that has cooled and solidified from a molten state is an igneous rock. Therefore, if the Earth began as a superheated sphere in space, all the rocks making up its crust may well have been igneous and thus the ancestors of all other rocks. Even today, approximately 95 percent of the entire crust is igneous. Periodically, molten material wells out of the Earth's interior to invade the surface layers or to flow onto the surface itself. This material cools into a wide variety of igneous rocks. In the molten state, it is called magma as it pushes into the crust and lava when it runs out onto the surface.

All magma consists basically of a variety of silicate minerals (high in silicon-oxygen compounds), but the chemical composition of any given flow may differ radically from that of any other. The resulting igneous rocks will reflect these differences. Igneous rocks also vary in texture as well as chemistry. Granite, for instance, is a coarse-grained igneous rock whose individual mineral crystals have formed to a size easily seen by the naked eye. A slow rate of cooling has allowed the crystals to reach this size. Normally, slow cooling occurs when the crust is invaded by magma that remains buried well below the surface. Granite may be found on the surface of the contemporary landscape, but from its coarse texture we know that it must have formed through slow cooling at a great depth and later been laid bare by erosion. Igneous rocks with this coarse-grained texture that formed at depth are called plutonic.

On the other hand, if the same magma flows onto the surface and is quickly cooled by the atmosphere, the resulting rock will be fine-grained and appear quite different from granite, although the chemical composition will be identical. This kind of rock is called rhyolite. The most finely grained igneous rock is volcanic glass or obsidian, which has no crystals. Some researchers believe this is because of rapid cooling; others believe it is because of a lack of water vapor and other gases in the lava. The black obsidian cliffs of Yellowstone National Park are the result of a lava flow of basalt running head on into a glacier. Some of the glacier melted on contact, but suddenly there also appeared a huge black mass of glassy stone.

13. In the first paragraph, the author mentions that
- (A) the Earth began as a molten mass
 - (B) a thin layer of magma flows beneath the Earth's crust
 - (C) the minerals found in igneous rock are very common
 - (D) igneous rock is continually being formed
14. The word "invade" in line 5 is closest in meaning to
- (A) move into
 - (B) neutralize
 - (C) cover
 - (D) deposit
15. The word "contemporary" in line 17 is closest in meaning to
- (A) vast
 - (B) natural
 - (C) existing
 - (D) uneven
16. The word "it" in line 17 refers to
- (A) granite
 - (B) surface
 - (C) landscape
 - (D) texture
17. Granite that has been found above ground has been
- (A) pushed up from below the crust by magma
 - (B) produced during a volcanic explosion
 - (C) gradually exposed due to erosion
 - (D) pushed up by the natural shifting of the Earth
18. Which of the following is produced when magma cools rapidly?
- (A) Granite
 - (B) Plutonic rock
 - (C) Rhyolite
 - (D) Mineral crystals
19. The word "finely" in line 23 is closest in meaning to
- (A) minutely
 - (B) loosely
 - (C) sensitively
 - (D) purely
20. Which of the following is another name for volcanic glass?
- (A) Plutonic rock
 - (B) Crystal
 - (C) Lava
 - (D) Obsidian

Questions 21-33

Although only 1 person in 20 in the Colonial period lived in a city, the cities had a disproportionate influence on the development of North America. They were at the cutting edge of social change. It was in the cities that the elements that can be associated with modern capitalism first appeared - the use of money and commercial paper in place of barter, open competition in place of social deference and hierarchy, with an attendant rise in social disorder, and the appearance of factories using coal or water power in place of independent craftspeople working with hand tools. "The cities predicted the future," wrote historian Gary.B.Nash , "even though they were but overgrown villages compared to the great urban centers of Europe, the Middle East and China."

Except for Boston, whose population stabilized at about 16,000 in 1760, cities grew by exponential leaps through the eighteenth century. In the fifteen years prior to the outbreak of the War for independence in 1775, more than 200,000 immigrants arrived on North American shores. This meant that a population the size of Boston was arriving every year, and most of it flowed into the port cities in the Northeast. Philadelphia's population nearly doubled in those years, reaching about 30,000 in 1774, New York grew at almost the same rate, reaching about 25,000 by 1775.

The quality of the hinterland dictated the pace of growth of the cities. The land surrounding Boston had always been poor farm country, and by the mid-eighteenth century it was virtually stripped of its timber. The available farmland was occupied, there was little in the region beyond the city to attract immigrants. New York and Philadelphia, by contrast, served a rich and fertile hinterland laced with navigable watercourses. Scots, Irish, and Germans landed in these cities and followed the rivers inland. The regions around the cities of New York and Philadelphia became the breadbaskets of North America, sending grain not only to other colonies but also to England and southern Europe, where crippling droughts in the late 1760's created a whole new market.

21. Which of the following aspects of North America in the eighteenth century does the passage mainly discuss?
- (A) The effects of war on the growth of cities
(B) The growth and influence of cities
(C) The decline of farming in areas surrounding cities
(D) The causes of immigration to cities
22. Why does the author say that "the cities had a disproportionate influence on the development of North America "lines 1-2"?
- (A) The influence of the cities was mostly negative
(B) The populations of the cities were small, but their influence was great.
(C) The cities were growing at a great rate.
(D) Most people pretended to live in cities
23. The phrase "in place of" in line 5 is closest in meaning to
- (A) connected to
(B) in addition to
(C) because of
(D) instead of
24. The word "attendant" in line 6 is closest in meaning to
- (A) avoidable
(B) accompanying
(C) unwelcome
(D) unexpected
25. Which of the following is mentioned as an element of modern capitalism?
- (A) Open competition
(B) Social deference
(C) Social hierarchy
(D) Independent craftspeople
26. It can be inferred that in comparison with North American cities, cities in Europe, the Middle East, and China had
- (A) large populations
(B) little independence
(C) frequent social disorder
(D) few power sources
27. The phrase "exponential leaps" in line 12 is closest in meaning to
- (A) long wars
(B) new laws
(C) rapid increases
(D) exciting changes
(C) Boston
(D) Year
28. The word "it" in line 15 refers to
- (A) population
(B) size
29. How many immigrants arrived in North America between 1760 and 1775?

- (A) About 16,000
 - (B) About 25,000
 - (C) About 30,000
 - (D) More than 200,000
30. The word "dictated" in line 18 is closest in meaning to
- (A) spoiled
 - (B) reduced
 - (C) determined
 - (D) divided
31. The word "virtually" in line 20 is closest in meaning to
- (A) usually
 - (B) hardly
 - (C) very quickly
 - (D) almost completely
32. The region surrounding New York and Philadelphia is contrasted with the region surrounding Boston in terms of
- (A) quality of farmland
 - (B) origin of immigrants
 - (C) opportunities for fishing
 - (D) type of grain grown
33. Why does the author describe the regions around the cities of New York and Philadelphia as "breadbaskets"?
- (A) They produced grain especially for making bread.
 - (B) They stored large quantities of grain during periods of drought
 - (C) They supplied grain to other parts of North America and other countries.
 - (D) They consumed more grain than all the other regions of North America.

Questions 34-44

Researchers in the field of psychology have found that one of the best ways to make an important decision, such as choosing a university to attend or a business to invest in, involves the utilization of a decision worksheet. Psychologists who study optimization compare the actual decisions made by people to theoretical ideal decisions to see how similar they are. Proponents of the worksheet procedure believe that it will yield optimal, that is, the best decisions. Although there are several variations on the exact format that worksheets can take, they are all similar in their essential aspects. Worksheets require defining the problem in a clear and concise way and then listing all possible solutions to the problem. Next, the pertinent considerations that will be affected by each decision are listed, and the relative importance of each consideration or consequence is determined. Each consideration is assigned a numerical value to reflect its relative importance. A decision is mathematically calculated by adding these values together. The alternative with the highest number of points emerges as the best decision.

Since most important problems are multifaceted, there are several alternatives to choose from, each with unique advantages and disadvantages. One of the benefits of a pencil and paper decision-making procedure is that it permits people to deal with more variables than their minds can generally comprehend and remember. On the average, people can keep about seven ideas in their minds at once. A worksheet can be especially useful when the decision involves a large number of variables with complex relationships. A realistic example for many college students is the question "What will I do after graduation?" A graduate might seek a position that offers specialized training, pursue an advanced degree, or travel abroad for a year.

A decision-making worksheet begins with a succinct statement of the problem that will also help to narrow it. It is important to be clear about the distinction between long-range and immediate goals because long-range goals often involve a different decision than short-range ones. Focusing on long-range goals, a graduating student might revise the question above to "What will I do after graduation that will lead to successful career?"

34. What does the passage mainly discuss?
- (A) A tool to assist in making complex decisions.
 - (B) A comparison of actual decisions and ideal decisions
 - (C) Research on how people make decisions
 - (D) Differences between long-range and short-range decision making
35. The word "essential" in line 7 is closest in meaning to
- (A) introductory
 - (B) changeable
 - (C) beneficial
 - (D) fundamental
36. The word "pertinent" in line 9 is closest in meaning to
- (A) relevant
 - (B) preceding
 - (C) insightful
 - (D) responsive
37. Of the following steps, which occurs before the others in making a decision worksheet?
- (A) Listing the consequences of each solution
 - (B) Calculating a numerical summary of each solution
 - (C) Deciding which consequences are most important
 - (D) Writing down all possible solutions
38. According to decision-worksheet theory, an optimal decision is defined as one that
- (A) has the fewest variables to consider
 - (B) uses the most decision worksheets
 - (C) has the most points assigned to it
 - (D) is agreed to by the greatest number of people
39. The author develops the discussion in paragraph I by means of
- (A) describing a process
 - (B) classifying types of worksheets
 - (C) providing historical background
 - (D) explaining a theory
40. The author states that "On the average, people can keep about seven ideas in their minds at once (lines 18-19) to explain that
- (A) most decisions involve seven steps
 - (B) human mental capacity has limitations
41. The author states that "On the average, people can keep about seven ideas in their minds at once (lines 18-19) to explain that
- (A) most decisions involve seven steps
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42. Which of the following terms is defined in the passage?
- (A) Proponents (line 5)
 - (B) Optimal (line 6)
 - (C) Variables (line 18)
 - (D) Long-range goals (line 26)
43. The word "it" in line 25 refers to
- (D) people can learn to keep more than seven ideas in their minds with practice
 - (A) worksheet
 - (B) problem
 - (C) distinction
 - (D) decision
41. The word "succinct" in line 24 is closest in meaning to
- (A) creative
 - (B) satisfactory
 - (C) personal
 - (D) concise
44. The word "revise" in line 28 is closest in meaning to
- (A) ask
 - (B) explain
 - (C) change
 - (D) predict

Questions 45-50

Elizabeth Hazen and Rachel Brown copatented one of the most widely acclaimed wonder drugs of the post-Second World War years. Hazen and Brown's work was stimulated by the wartime need to find a cure for the fungus infections that afflicted many military personnel. Scientists had been feverishly searching for an antibiotic toxic enough to kill the fungi but safe enough for human use, since, unfortunately, the new "wonder drugs" such as penicillin and streptomycin killed the very bacteria in the body that controlled the fungi. It was to discover a fungicide without that double effect that Brown, of New York State's Department of Health Laboratories at Albany, and Hazen, senior microbiologist at the Department of Health in New York, began their long-distance collaboration. Based upon Hazen's previous research at Columbia University, where she had built an impressive collection of fungus cultures, both were convinced that an antifungal organism already existed in certain soils.

They divided the work. Hazen methodically screened and cultured scores of soil samples, which she then sent to her partner, who prepared extracts, isolated and purified active agents, and shipped them back to New York, where Hazen could study their biological properties. On a 1948 vacation, Hazen fortuitously collected a clump of soil from the edge of W.B. Nourse's cow pasture, Hazen fortuitously collected a clump of soil from the edge of W.B. Nourse's cow pasture in Fauquier County, Virginia, that, when tested, revealed the presence of the microorganisms. In farm owner Nourse's honor. Hazen named it *Streptomyces noursei*, and within a year the two scientists knew that the properties of their substance distinguished it from previously described antibiotics. After further research they eventually reduced their substance to a fine, yellow powder, which they first named "fungiciden." Then renamed "nystatin" (to honor the New York State laboratory) when they learned the previous name was already in use. Of their major discovery, Brown said lightly that it simply illustrated "how unpredictable consequences can come from rather modest beginnings."

45. What is the main topic of the passage?
- (A) The lives of Hazen and Brown.
(B) The development of a safe fungicide.
(C) The New York State Department of Health.
(D) The development of penicillin.
46. What can be inferred from the passage about penicillin?
- (A) It effectively treats fungus infections.
(B) It was developed before nystatin.
(C) It was developed before the Second World War.
(D) One of its by-products is nystatin.
47. Why does the author mention Columbia University in lines 10 and 11?
- (A) Hazen and Brown developed nystatin there.
(B) Brown was educated there.
(C) Hazen did research there.
(D) It awarded a prize to Hazen and Brown.
48. The word "both" in line 11 refers to
- (A) Hazen and Brown
(B) penicillin and streptomycin
(C) the Department of Health laboratories at Albany and New York
(D) double effect
49. What substance did Brown and Hazen analyze?
- (A) Dirt
(B) Streptomycin
(C) Bacteria
50. Who was W. B. Nourse?
- (A) A microbiologist
(B) A teacher of Hazen's
(C) A collector of fungi
(D) A farmer

