Section 3: Reading comprehension

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.

Answer: _____

2. The word "it" in line 4 refers to
(A) burning
(B) phlogiston
(C) combustible material
(D) air

Answer: _____

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

Answer: _____

4. The word "properties" in line 10 is closest in meaning to
(A) interpretations
(B) locations
(C) characteristics
(D) virtues

Answer: _____

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

Answer: _____

LIVEWORKSHEETS

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
Answer: _____

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
Answer: _____

8. The word "constituent" in line 19 is closest in meaning to
(A) component
(B) opposite
(C) principle
(D) temperature
Answer: _____

9. The word "Since" in line 20 is closest in meaning to
(A) later
(B) because
(C) during
(D) although
Answer: _____

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.
Answer: _____

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 vauits 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 does 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.

LIVEWORKSHEETS

11.What does the passage mainly discuss?
(A) Advances in iron processing in the eighteenth and nineteenth centuries
(B) The effects of t he 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
Answer: _____

12.The word "revolutionized" in line 1 is closest in meaning to
(A) quickly started
(B) gradually opened
(C) dramatically changed
(D) carefully examined
Answer: _____

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 are produced poor quality iron
Answer: _____

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
Answer: _____

15. The word "it" in line 11 refers to
(A) industrial architecture
(B) internal iron skeleton
(C) stone
(D) strength
Answer: _____

16. The word "appeal" in line 12 is closest in meaning to
(A) adjustment
(B) assignment
(C) attraction
(D) attempt
Answer: _____

17. The word "spawned" in line 17 is closest in meaning to
(A)Created
(B)maintained
(C)rejected
(D)exposed
Answer: _____

18. The word "surpassed" in line 20 is closest in meaning to
(A)imitated
(B) exceeded
(C)approached
(D)included
Answer: _____

19.According to paragraph 3, the architectural significance of the Halle des Machines was its
(A)wide span

LIVEWORKSHEETS

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

Answer: _____

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.

Answer: _____

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

Answer: _____

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

Answer: _____

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 he similar to that of Earth's iron core3 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 Antarctica1 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 conic 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 of 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 chordates, 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

Answer: _____

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

LIVEWORKSHEETS

(D) field

Answer: _____

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

Answer: _____

26. The word "embedded" in line 10 is closest in meaning to

(A) isolated
(B) encased
(C)enhanced
(D) enlarged

Answer: _____

27.The word "spotting" in line 17 is closest in meaning to

(A) removing
(B) identifying
(C)cooling
(D) falling

Answer: _____

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

Answer: _____

29.Where was the Mundrabilla meteorite discovered?

(A)On the Nullarbor Plain
(B)In a field
(C)On a mountain
(D)In Antarctica

Answer: _____

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

(A)stony meteorites
(B) falls
(C)Earth materials
(D) ancient bodies

Answer: _____

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.

Answer: _____

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

Answer: _____

LIVEWORKSHEETS

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 late1960'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 fanuliarizing 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' 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

Answer: _____

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

Answer: _____

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 monhuman 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

Answer: _____

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

Answer: _____

37.The phrase "shied away from" in line 8 is closest in meaning to
(A) approached
(B) avoided
(C) respected
(D) allowed

Answer: _____

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 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.

LIVEWORKSHEETS

(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.

Answer: _____

39.The word "it" in line 16 refers to
(A) red spot
(B) animal
(C) reflection
(D) another individual

Answer: _____

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

Answer: _____

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

Answer: _____

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 run off of poisonous waste; in less than two centuries, by significantly reducing the variety of species on Earth, they have unraveled cons 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 discuss?
(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

Answer: _____

43. The word "critical" in line 1 is closest in meaning to
(A) negative
(B) essential
(C)interesting
(D) complicated

LIVEWORKSHEETS

Answer: _____

44. The word "jolting" in line 5 is closest in meaning to
(A)predicted
(B) shocking
(C)unknown
(D) illuminating
Answer: _____

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
(U)) an understanding of evolution can prevent certain species from disappearing
Answer: _____

46. The author mentions all of the following as examples of the effect of humans oil 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
Answer: _____

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
Answer: _____

48.The word "magnitude" in line 20 is closest in meaning to
(A) concern
(B) determination
(C)carelessness
(D) extent
Answer: _____

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
Answer: _____

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
Answer: _____

LIVEWORKSHEETS