The growth of cities, the construction of hundreds of new factories, and the spread of railroads in the United States before 1850 had increased the need for better illumination. But the lighting in American homes had improved very little over that of ancient times.

Through the colonial period, homes were lit with tallow candles or with a lamp of the kind used in ancient Rome—a dish of fish oil or other animal or vegetable oil in which a twisted rag served as a wick. Some people used lard, but they had to heat charcoal underneath to keep it soft and burnable. The sperm whale provided a superior burning oil, but this was expensive. In 1830 a new substance called “camphene” was patented, and it proved to be an excellent illuminant. But while camphene gave a bright light it too remained expensive, had an unpleasant odor, and also was dangerously explosive.

Between 1830 and 1850 it seemed that the only hope for cheaper illumination in the United States was in the wider use of gas. In the 1840’s American gas manufacturers adopted improved British techniques for producing illuminating gas from coal. But the expense of piping gas to the consumer remained so high that until midcentury gaslighting was feasible only in urban areas, and only for public buildings or for the wealthy.

In 1854 a Canadian doctor, Abraham Gesner, patented a process for distilling a pitchlike mineral found in New Brunswick and Nova Scotia that produced illuminating gas and an oil that he called “kerosene” (from “keros,” the Greek word for wax, and “ene” because it resembled camphene). Kerosene, though cheaper than camphene, had an unpleasant odor, and Gesner never made his fortune from it. But Gesner had aroused a new hope for making an illuminating oil from a product coming out of North American mines.

1. Which of the following is NOT mentioned as a reason why better lighting had become necessary by the mid-nineteenth century?
   (A) Development of railroads
   (B) Demand for better medical facilities
   (C) Increases in the number of new factories
   (D) Growth of cities

2. The phrase “served as” in line 6 is closest in meaning to
   (A) differed from
   (B) functioned as
   (C) rested upon
   (D) reacted to

3. The word “this” in line 8 refers to
   (A) lard
   (B) charcoal
   (C) wick
   (D) oil

4. Which of the following is NOT mentioned as a disadvantage of camphene?
   (A) High cost
   (B) Bad smell
   (C) Potential to explode
   (D) Greasy texture
5. What can be inferred about the illuminating gas described in the second paragraph?
(A) It was first developed in the United States.
(B) It was not allowed to be used in public buildings.
(C) It was not widely available until midcentury.
(D) It had an unpleasant smell.

6. The word "resembled" in line 19 is closest in meaning to
(A) was similar to
(B) cost the same as
(C) was made from
(D) sounded like

7. According to the passage, what advantage did the kerosene patented by Gesner have over camphene?
(A) Kerosene had a more pleasant smell.
(B) Kerosene was less expensive.
(C) Kerosene burned more brightly.
(D) Kerosene was safer to use.

8. The word "it" in line 20 refers to
(A) fortune
(B) odor
(C) camphene
(D) kerosene

9. Which of the following best describes the organization of the passage?
(A) A description of events in chronological order
(B) A comparison of two events
(C) The statement of a theory and possible explanations
(D) An analysis of scientific findings

10. Where in the passage does the author mention the origin of a word?
(A) Lines 4-6
(B) Lines 7-8
(C) Lines 12-13
(D) Lines 16-19
The penny press, which emerged in the United States during the 18-30's, was a powerful agent of mass communication. These newspapers were little dailies, generally four pages in length, written for the mass taste. They differed from the staid, formal presentation of the conservative press, with its emphasis on political and literary topics. The new papers were brief and cheap, emphasizing sensational reports of police courts and juicy scandals as well as human interest stories. Twentieth-century journalism was already foreshadowed in the penny press of the 1830's.

The New York Sun, founded in 1833, was the first successful penny paper, and it was followed two years later by the New York Herald, published by James Gordon Bennett. Not long after, Horace Greeley issued the New York Tribune, which was destined to become the most influential paper in America. Greeley gave space to the issues that deeply touched the American people before the Civil War—abolitionism, temperance, free homesteads, Utopian cooperative settlements, and the problems of labor. The weekly edition of the Tribune, with 100,000 subscribers, had a remarkable influence in rural areas, especially in Western communities.

Americans were reputed to be the most avid readers of periodicals in the world. An English observer enviously calculated that, in 1829, the number of newspapers circulated in Great Britain was enough to reach only one out of every thirty-six inhabitants weekly; Pennsylvania in that same year had a newspaper circulation which reached one out of every four inhabitants weekly. Statistics seemed to justify the common belief that Americans were devoted to periodicals. Newspapers in the United States increased from 1,200 in 1833 to 3,000 by the early 1860's, on the eve of the Civil War. This far exceeded the number and circulation of newspapers in England and France.

Questions 11 – 21

11. What is the author's main point in the first paragraph?
   (A) The penny press was modeled on earlier papers.
   (B) The press in the nineteenth century reached only a small proportion of the population.
   (C) The penny press became an important way of disseminating information in the first half of the nineteenth century.
   (D) The penny press focused mainly on analysis of politics.

12. What does the author mean by the statement in lines 6-7 that twentieth-century journalism was foreshadowed by the penny press?
   (A) The penny press darkened the reputation of news writing.
   (B) Twentieth-century journalism is more important than nineteenth-century journalism.
   (C) Penny-press news reporting was more accurate than that in twentieth-century newspapers.
   (D) Modern news coverage is similar to that done by the penny press.
13. Which of the following would LEAST likely be in a penny-press paper?
(A) A report of theft of union funds by company officials
(B) An article about a little girl returning a large amount of money she found in the street
(C) A scholarly analysis of an economic issue of national importance
(D) A story about land being given away in the West

14. The word "it" in line 8 refers to
(A) the New York Sun
(B) the New York Herald
(C) America
(D) the Civil War

15. Who was Horace Greeley (line 10)?
(A) The publisher of the first penny-press paper to make a profit
(B) The founder of the penny-press paper that did the most to influence the thinking of the public
(C) The most successful writer for the penny press
(D) The man who took over James Gordon Bennett's penny-press paper and made it successful

16. The word "remarkable" in line 14 is closest in meaning to
(A) significant
(B) discussable
(C) remote
(D) uneven

17. The word "avid" in line 16 is closest in meaning to
(A) intelligent
(B) eager
(C) critical
(D) thrifty

18. The figures concerning newspaper circulation in Pennsylvania in 1829 are relevant because they
(A) explain why so many different periodicals were published
(B) prove that weekly periodicals were more successful than daily papers
(C) show the difference between reading habits before and after the Civil War
(D) support the belief that Americans were enthusiastic readers of periodicals

19. The word "justify" in line 20 is closest in meaning to
(A) generate
(B) calculate
(C) modify
(D) prove

20. The third paragraph is developed primarily by means of
(A) descriptions
(B) contrasts
(C) ordering events in time sequence
(D) analysis of a process

21. It can be inferred that penny-press newspapers were all of the following EXCEPT
(A) inexpensive
(B) informal
(C) profitable
(D) thorough
Questions 22 – 34

Broad-tailed hummingbirds often nest in quaking aspens, slender deciduous trees with smooth, gray-green bark found in the Colorado Rockies of the western United States. After flying some 2,000 kilometers north from where they have wintered in Mexico, the hummingbirds need six weeks to build a nest, incubate their eggs, and raise the chicks. A second nest is feasible only if the first fails early in the season. Quality, not quantity, is what counts in hummingbird reproduction.

A nest on the lowest intact branch of an aspen will give a hummingbird a good view, a clear flight path, and protection for her young. Male hummingbirds claim feeding territories in open meadows where, from late May through June, they mate with females coming to feed but take no part in nesting. Thus when the hen is away to feed, the nest is unguarded. While the smooth bark of the aspen trunk generally offers a poor grip for the claws of a hungry squirrel or weasel, aerial attacks, from a hawk, owl, or gray jay, are more likely.

The choice of where to build the nest is based not only on the branch itself but also on what hangs over it. A crooked deformity in the nest branch, a second, unusually close branch overhead, or proximity to part of a trunk bowed by a past ice storm are features that provide shelter and make for an attractive nest site. Scarcely larger than a halved golf ball, the nest is painstakingly constructed of spiderwebs and plant down, decorated and camouflaged outside with paper-like bits of aspen bark held together with more strands of spider silk. By early June it will hold two pea-sized eggs, which each weigh one-seventh of the mother's weight, and in sixteen to nineteen days, two chicks.

22. What aspect of broad-tailed hummingbird behavior does the passage mainly discuss?
   (A) Migration routes
   (B) Mating habits
   (C) Caring for the young
   (D) Selection of nest sites

23. According to the passage, in what circumstances do hummingbirds build a second nest?
   (A) If the winter is unusually warm
   (B) If the chicks in the first nest hatch early
   (C) If there is an unusually large supply of food
   (D) If the eggs are destroyed early in the season

24. The word "counts" in line 6 is closest in meaning to
   (A) weighs
   (B) estimates
   (C) matters
   (D) numbers

25. The word "clear" in line 8 is closest in meaning to
   (A) bright
   (B) exact
   (C) unobstructed
   (D) transparent
26. The word "they" in line 9 refers to
   (A) male hummingbirds
   (B) territories
   (C) meadows
   (D) females

27. According to the passage, which of the following is true of the male broad-tailed hummingbird?
   (A) It finds food for the female and the chicks.
   (B) It protects the nest while the female searches for food.
   (C) It is not involved in caring for the chicks.
   (D) It shares nesting duties equally with the female.

28. It can be inferred from the passage that the broad-tailed hummingbirds' eggs and chicks are most vulnerable to attacks by
   (A) insects
   (B) humans
   (C) birds
   (D) squirrels

29. Which of the following would be a good location for a broad-tailed hummingbird to build its nest?
   (A) A branch near the top of a tree
   (B) The longest branch of a tree
   (C) A thick branch
   (D) A protected branch

30. The word "Scarcely" in line 17 is closest in meaning to
   (A) obviously
   (B) barely
   (C) consistently
   (D) needlessly

31. Which of the following was NOT mentioned in the passage as a nest-building material of the broad-tailed hummingbird?
   (A) Paper
   (B) Plant down
   (C) Spiderwebs
   (D) Tree bark
32. The author compares the size of the broad-tailed hummingbird's nest to
   (A) a pea
   (B) a golf ball
   (C) a spiderweb
   (D) an egg

33. According to the passage, how long does it take for broad-tailed hummingbird eggs to hatch?
   (A) Less than a week
   (B) Two to three weeks
   (C) One month
   (D) More than six weeks

34. Where in the passage does the author mention the number of eggs generally found in the nests of broad-tailed hummingbirds?
   (A) Line 5
   (B) Lines 10-11
   (C) Lines 15-17
   (D) Lines 20-22
Questions 35 – 40

The ice sheet that blanketed much of North America during the last glaciation was in the areas of maximum accumulation more than a mile thick. Everywhere the glacier lay, its work is evident today. Valleys were scooped out and rounded by the moving ice; peaks were scraped clean. Huge quantities of rock were torn from the northern lands and carried south. Long, high east-west ridges of this eroded debris were deposited by the ice at its melting southern margin. Furthermore, the weight of the huge mass of ice depressed the crust of the Earth in some parts of Canada by over a thousand feet. The crust is still rebounding from that depression.

In North America, perhaps the most conspicuous features of the postglacial landscape are the Great Lakes on the border between the United States and Canada. No other large freshwater body lies at such favorable latitudes. The history of the making of these lakes is long and complex.

As the continental ice sheet pushed down from its primary centers of accumulation in Canada, it moved forward in lobes of ice that followed the existing lowlands. Before the coming of the ice, the basins of the present Great Lakes were simply the lowest-lying regions of a gently undulating plain. The moving tongues of ice scoured and deepened these lowlands as the glacier made its way toward its eventual terminus near the present Ohio and Missouri rivers.

About 16,000 years ago the ice sheet stood for a long time with its edge just to the south of the present great Lakes. Erosional debris carried by the moving ice was dumped at the melting southern edge of the glacier and built up long ridges called terminal moraines. When the ice began to melt back from this position about 14,000 years ago, meltwater collected behind the dams formed by the moraines. The crust behind the moraines was still depressed from the weight of the ice it had borne, and this too helped create the Great Lakes. The first of these lakes drained southward across Illinois and Indiana, along the channels of the present Illinois and Wabash rivers.

35. With what topic is the passage primarily concerned?
(A) The formation of the Great Lakes
(B) How geographical structures develop
(C) Damage done by the last ice age
(D) How the last ice age developed

36. The glaciers discussed in this passage traveled
(A) north to south
(B) south to north
(C) east to west
(D) west to east
37. The word "its" in line 6 refers to
   (A) margin
   (B) ice
   (C) rock
   (D) valley

38. According to the passage, the weight of the ice had its greatest direct effect upon the continent's
   (A) crust
   (B) plain
   (C) rivers
   (D) peaks

39. In line 11, the word "lies" could best be replaced by which of the following?
   (A) reclines
   (B) is located
   (C) originates
   (D) expands

40. According to the passage, at the time of glacial movement the basins of the present Great Lakes were
   (A) low-lying
   (B) small
   (C) hilly
   (D) flat
In the two decades between 1929 and 1949, sculpture in the United States sustained what was probably the greatest expansion in sheer technique to occur in many centuries. There was, first of all, the incorporation of welding into sculptural practice, with the result that it was possible to form a new kind of metal object. For sculptors working with metal, earlier restricted to the dense solidity of the bronze cast, it was possible to add a type of work assembled from paper-thin metal sheets or sinuously curved rods. Sculpture could take the form of a linear, two-dimensional frame and still remain physically self-supporting. Along with the innovation of welding came a correlative departure: freestanding sculpture that was shockingly flat.

Yet another technical expansion of the options for sculpture appeared in the guise of motion. The individual parts of a sculpture were no longer understood as necessarily fixed in relation to one another, but could be made to change position within a work constructed as a moving object. Motorizing the sculpture was only one of many possibilities taken up in the 1930’s. Other strategies for getting the work to move involved structuring it in such a way that external forces, like air movements or the touch of a viewer, could initiate motion. Movement brought with it a new attitude toward the issue of sculptural unity: a work might be made of widely diverse and even discordant elements; their formal unity would be achieved through the arc of a particular motion completing itself through time.

Like the use of welding and movement, the third of these major technical expansions to develop in the 1930’s and 1940’s addressed the issues of sculptural materials and sculptural unity. But its medium for doing so was the found object, an item not intended for use in a piece of artwork, such as a newspaper or metal pipe. To create a sculpture by assembling parts that had been fabricated originally for a quite different context did not necessarily involve a new technology. But it did mean a change in sculptural practice, for it raised the possibility that making sculpture might involve more a conceptual shift than a physical transformation of the material from which it is composed.

41. The word “innovation” in line 8 is closest in meaning to
(A) limitation
(B) important concept
(C) use
(D) new idea

42. It could be inferred that between 1929 and 1949 sculptors changed in what way?
(A) They depended less on patrons to finance their work.
(B) They were less imaginative in their designs.
(C) They exhibited sculpture more often outside than in galleries.
(D) They used a wider variety of materials and techniques.
43. It can be inferred that which of the following happened when sculptors began to use welding as a technique?
   (A) Some sculpture became lighter and thinner.
   (B) Sculpture became more expensive to create.
   (C) Sculptors took more time to complete their work.
   (D) Sculpture became more ornate.

44. The word "initiate" in line 16 is closest in meaning to
   (A) cause
   (B) alter
   (C) hinder
   (D) prolong

45. The word "it" in line 16 refers to
   (A) viewer
   (B) movement
   (C) attitude
   (D) issue

46. According to the passage, how did the use of motion affect sculpture?
   (A) It caused the old materials to be discarded.
   (B) It required sculptors to collaborate with engineers.
   (C) It changed the concept of sculptural unity.
   (D) It forced sculptors to weld all parts permanently.

47. The word "diverse" in line 17 is closest in meaning to
   (A) dissimilar
   (B) unappealing
   (C) unreliable
   (D) distinctive

48. What is the main idea of the third paragraph?
   (A) Found objects make unattractive sculptures.
   (B) Sculptors looked for found objects in garbage cans.
   (C) The use of found objects changed the way sculpture is created.
   (D) Sculptors who used found objects enjoyed great success.

49. The word "fabricated" in line 24 is closest in meaning to
   (A) enlarged
   (B) made
   (C) ordered
   (D) revealed

50. Which of the following was NOT a new technique developed during this period?
   (A) Creating sculptures that move
   (B) Welding metal pieces together
   (C) Including found objects in sculpture
   (D) Making a bronze cast
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